Gleanings in Bee Culture

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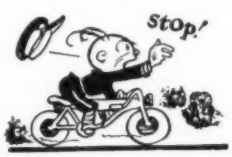

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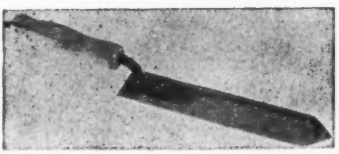

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Use of honeybees in cranberry bogs

ROBERT S. FILMER [1] and CHARLES A. DOEHLERT [2]

N. J. Agricultural Experiment Station

Professor Robert S. Filmer examines the bloom of blueberry at the New Jersey Experimental Station.—Photos by Rutgers News Service, George H. Holsten, Jr. Director.

BEES OF SOME kind are needed to pollinate cranberries. In areas of bog covered by wire netting, Hutson, in 1925, found that out of 100 blooms, as many as 56 set berries when honeybees were present, and only eight set berries when all bees were kept out.

The main problem of cranberry growers is whether enough wild bees are present. The chief questions that come to our offices, and our answers, are as follows:

[1] Associate Research Specialist, Entomology
[2] Associate Research Specialist, Cranberry and Blueberry Culture.

1. How is cranberry pollen transferred?

Under New Jersey conditions, pollinating insects collect cranberry pollen and are largely responsible for the pollination of cranberries.

The literature on cranberry pollination presents two contrasting views on the mode of pollen transfer: according to one, pollination is accomplished by insect visitors; according to the other, wind or agitation of the vines is chiefly responsible for transfer of the pollen.

Experiments in 1948, 1949, and 1950 on New Jersey cranberry bogs demonstrated that only 15 berries per square

foot were set in plots caged to exclude insects, even though the vines were agitated daily by various means to dislodge the pollen. On adjacent, uncaged plots where insect visitors were responsible for the pollen transfer, 90 to 152 berries were set per square foot.

Pollen trap collections during the cranberry bloom period showed that approximately 50 per cent of the pollen collected by hive bees used in the cranberry area was from cranberries and that the pollen pellets collected from the legs of bumblebees and other wild bees visiting cranberry bloom were made up of cranberry pollen.

2. How big is my pollination problem?

Remember that the job of pollination must be done by insects during the three to four weeks when the cranberries are in bloom. In New Jersey, cranberry yields of 100 to 150 barrels (100 pounds each) per acre have been obtained, though half of the bogs under cultivation produce, in a normal year if there is no frost loss, only 19 to 53 barrels per acre. (Doehlert, C. A. & D. O. Boster.)

The number of berries per square foot, which is an approximate measure of yield in barrels per acre, can be used to determine the number of insect visits required to set a crop. For example, to produce a crop of 100 barrels will require 100 (berries set per square foot) x 43,560 (square feet per acre), or 4,356,000 insect visits per acre. Multiply this figure by your total acreage to find the total number of insect visits required to set your crop.

Keep in mind that bee flight may be curtailed by rain or restricted by high winds and that other plant bloom will compete with cranberry bloom for the attention of the bees. These conditions reduce either the flight time or the numbers of bees visiting cranberry bloom. During most seasons, then, weather conditions shorten our pollination period.

In 1948, experiments were conducted on a 60-acre bog of Howard Bell berries and a 25-acre bog of Early Blacks. The 60-acre bog averaged 118 berries per square foot, and the 25-acre bog averaged 215 berries. The number of insects visits required was figured as follows:

Berries per foot	Sq. ft. per acre	No. of acres in bog	Total insect visits
118 x	43,560 x	60 =	308,404,800
215 x	43,560 x	25 =	234,130,000
			542,534,800

These two bogs were only a few hundred yards apart and consequently would have to depend on the native pollinating insect population to furnish some 542,534,800 insect visits during the blooming period of about 30 days, or an average of 18,000,000 a day. This figure is much higher when we take rainy days and the peak bloom period into consideration.

3. Can I depend on wild bees?

In most cases, yes. In small or moderate-sized bogs or in large bogs that are rather narrow, all parts of the bog are within easy access of wild land where bumblebees have their nests and breed. In large bogs of 50 or more acres, the area may be too great to be covered by the normal population of wild bees. And in seasons following forest fires there may not be enough wild bees to pollinate even the smaller bogs.

Hutson, in 1926, calculated that an average count of close to three bumblebees per square rod was sufficient for good pollination. A good way to make such a count is to pick out a strip one rod wide that cuts across your bog. There may be a path about a rod away from a ditch, or you may have to put up a string as a guide. Then on a sunny day walk along the edge of this strip looking for bumblebees. Note the number you see for every rod you pace off. If your count averages three or more bumblebees per square rod, you probably have enough insects to distribute the pollen required for a good crop of cranberries.

But suppose a period of stormy weather should set in right after you've made an encouraging count of bumblebees. For the rest of the blooming season there might be only a few spells of good weather that would last long enough to produce healthy blossoms and allow their fertilization. Then the bog supplied with honeybees to help out the bumblebees would have a chance of setting a better crop. A case as extreme as this, however, is unusual.

If you make counts for the first time

Research findings by Rutgers' entomologist Robert S. Filmer has given the honeybee added stature in New Jersey's cranberry bogs where the bees are necessary to pollinate the berries. His tests showed that the use of twice as many bees as the customary one-colony-for-two-acres almost doubled the yield per acre. Now the New Jersey cranberry industry, ranked third in the nation, can look ahead to yields of 100 barrels an acre—nearly seven times the average 1953 yields that brought the State a $1,733,000 crop.

this summer, you won't have time to plan on renting hives this year. But these counts will be useful in checking on the pollinating that is going on and will help you in making plans for next year. If no forest fires intervene, the chances are that this year's population will be about the same next year. Since honeybees are used chiefly as insurance against unusual and unforseen conditions, a grower generally sizes up his conditions on the basis of several years' observations and then becomes a regular user of bees or a regular nonuser.

4. Should I wait until the blooming season to decide whether I have enough wild bees?

No. If there is a shortage of bumblebees and you don't discover it until the cranberries are in full bloom, you will have lost a valuable pollinating period and will lose more while you are arranging the rental and while the bees are being delivered. Furthermore, with a hurried arrangement of this sort you are not likely to be able to get a full quota of strong colonies.

You can get advance information by watching for bumblebees along the dams and in other places where plants are blooming during May. At that time, with practice, you can judge whether the season is going to be a good one for bumblebees.

5. How much should I pay for the rental of a colony?

The size and the quality of the colony are more important than the differences between the p r i c e s usually quoted. Several weak colonies may be

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worth less than one strong colony. Prices commonly vary from $5.00 to $7.50 a colony, depending chiefly on the number ordered. The price asked by a well-established beekeeper is likely to be fair if his colonies are as good as he claims they are. The skill and the integrity of the beekeeper are the important things to shop for.

6. How can I tell whether I have rented effective colonies?

A standard set by some beemen for a cranberry-pollinating colony is a single-chamber, 10-frame hive in which five frames are well filled with brood, or baby bees, and accompanied by three and one-half pounds of adult bees. If a hive is as strong as this, the beeman will be around shortly after he moves the hives into the bog to put on a second chamber or story for expansion and storage of honey.

Brood is important because no colony can be strong and active unless it has young bees to work for and to replenish its population. A pound of bees occupies about a quart of space and consists of about 4,000 insects.

This may sound a little technical to those of you who have not worked with bees. But you will find it very interesting if you will put on a beebonnet and get your beeman to open a hive for you and point out these few simple items. Then for your own practical purposes, make note of the colony that he feels is representative of the lot. On bright sunny days, observe the rate at which the bees come and go. A strong colony will present a very busy appearance.

7. How many colonies are needed per acre of bog?

One colony should take care of five acres of bog, if it is set up at the edge of the bog or on the bog and if the population of wild pollinators is anywhere near normal.

8. Are spray applications of insecticides and fungicides repellent to bees?

Tests conducted in 1948 and 1949 by this writer showed that Fermate, Zerlate, and other fungicides applied during the bloom period were not repellent to honeybees. In fact, plots so treated set a larger crop than did the unsprayed check plots.

DDT and other organic insecticides applied during the bloom period proved toxic to honeybees, and there was residual toxic effect on bees for several days. Avoid the use of DDT during the bloom period.

9. Can I reduce the expense of bee rental by offering my property to a beekeeper as a year 'round pasture for his bees?

Probably not. In most localities, the longer the beekeeper has his colonies in the cranberry district, the greater is his lost opportunity for making high-grade marketable honey. In some years there is a good flow of clethera honey following cranberry bloom, but it is rather uncertain. In some sections the bees regularly do well enough to maintain themselves in good strength and build up adequate stores for overwintering. Perhaps in these areas, they might in some years make enough extra honey to provide for over-wintering other weaker colonies in the beekeeper's possession. But the honey made in the bog region, except that from clethra, is likely to have an acrid flavor. Accordingly, the straight rental arrangement is usually the most satisfactory for both parties.

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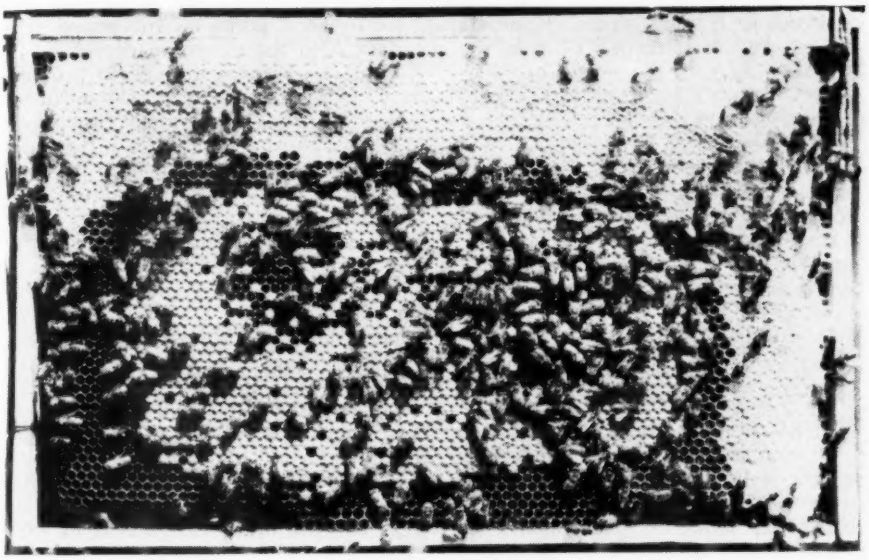
Hobby Meeting

JUNE 17, 18, and 19 is the date for the first meeting of hobby beekeepers from Maryland, Virginia, Delaware, New Jersey, New York, Pennsylvania, and New England. They will gather at the University of Maryland to participate in a fine program prepared by Dr. G. J. Abrams, Maryland Apiculturist. Complete details can be obtained by writing to Dr. Abrams at the University of Maryland, College Park, Md., or to Mr. W. K. Davis, 81 Bergen Street, Providence 8, Rhode Island.

Summer colony management

HOWARD A. PIKE, Apiary Inspector. R. I. Department of Agriculture



On this frame the queen is being crowded out by incoming honey.
—Photo by David Bone, England.

WHEN THE honey flow begins, the colony should be of maximum strength, the hive packed with brood and honey, and there should be an abundance of young bees and, of course, a very large force of field bees.

The "food chamber" idea has now proved its worth and is used by many successful beekeepers, so it is explained here as it has a direct bearing on the matter of obtaining and keeping colonies strong. The food chamber can be a super of the half-depth, standard shallow, or the full-depth, the same as the brood chamber. The latter size is probably the best to use from the standpoint of holding the most honey and having the frames of both brood chamber and food chamber the same size. The food chamber will stay on the hive all the year round and wintering in these two deep bodies is very apt to be successful especially if the food chamber is filled with early-gathered honey. The queen will also have more room in which to lay in the spring, and strong colonies should be the result.

If the beekeeper has provided, in advance, several supers of the extracting kind, one of these can be used for a food chamber and should be put on the hive just as soon as the colony starts to overcrowd the brood chamber. The food chamber is accessible to the queen all the year round, but she will be crowded out when the honey flow starts, as the bees will fill the cells with early honey as fast as the brood emerges. This will not matter as the queen will let up egg laying to some extent when the flow tapers off.

One thing in favor of the shallow super for a food chamber is that it is easier to lift off and on the brood chamber. It is generally filled solid with honey at the end of the harvest and when looking for the queen we will not have to examine two sets of deep combs to find her. It provides enough room in the spring, together with the brood chamber, for a good queen to lay in, and at the same time not so much space for the bees to try and keep warm in the winter. The food-chamber plan has been tested here in Rhode Island for several seasons using the shallow super and it seems to work out better than the deep super.

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The food chamber belongs to the bees, honey and all; it is never removed from the hive except to examine the brood chamber. It always sits on top of the brood chamber and the queen has access to it at all times. If supers are used, put all of them on top of the food chamber with the queen excluder between them. There is little necessity of ever feeding the bees with sugar syrup, if they are equipped with a food chamber. The contents of this we strictly leave for the bees as it is an automatic natural feeder provided with the best of stores obtainable. The food-chamber idea solves the question of keeping colonies strong, provided, of course, they always have a vigorous young queen.

Adding Supers

SUPERS FOR storing surplus honey are put on as needed. Good management calls for these supers to be put on the hive a short time before they are needed, not all at once, unless the beekeeper expects to be away during the summer while the honey flows are on. It is a mistake to wait, however, until one super is full before adding another, unless it is near the end of the honey flow when we want the super absolutely full before taking it off. Putting on supers at the right time tends to retard, if not prevent, swarming.

Giving more room to the bees for spreading the nectar in the cells for ripening, draws a lot of bees out of the brood nest and eliminates the crowded condition below. Neglecting to put the supers on early enough on a strong colony is surely inviting the already crowded colony to start swarm cells (queen cells to provide a new queen to replace the queen which would go with the swarm). It also means the loss of a lot of good honey as the brood nest cannot hold the incoming nectar.

Some beekeepers may be in a quandary as to the position of the supers needed during a good honey flow when nectar is pouring in so freely that several supers are needed to hold the harvest. The method in general use, but not the easiest, is to raise the first super when almost filled and place the empty one underneath, which is on top of the brood nest or on the food chamber if one is used. Do this with all the supers, always adding the empty one at the bottom, except at the close of the flow when the empty super is added on top so as to be sure that the super previously added is filled completely.

The experienced beekeeper who has tried the newer method of adding supers will use no other, as it saves a lot of heavy lifting, combs are filled better, and are capped more thoroughly than the method explained above. When adding supers by this newer method, they are put on top of the one already there, even if they have only foundation in the frames. The bees do not seem to be discouraged by having to climb up to store and ripen the honey. Both of these methods are for extracted-honey production. Be sure to "super" the colonies before they require more room. This keeps the colony more contented by eliminating crowded brood nests to a degree where swarming will be retarded or prevented.

Another Idea on Imbedding Wires

By E. S. BRANTLEY

IN JANUARY 1955 Gleanings appears an article by Charles J. Koover on imbedding wires electrically and I think his idea is wonderful, so much so that I have an idea that I am using that might be of use to him and many others alike.

I have my switch on a peddle under the table where I do my work and only apply the current to the imbedder after it has come in contact with the wires in the frame and release the switch before I pick up the imbedder.

I tried his method with the switch and like it real well but found that with the foot switch it makes it a lot easier and faster.

Grandin, Florida

The packing of cut comb honey

CHARLES MRAZ, Middlebury, Vt.

THE PACKING and selling of cut comb honey is by no means a new thing and no doubt is as old as beekeeping itself. However, the possibilities of packing this type of honey have increased with the coming of moisture proof cellophane. One feature of comb honey is its unique and attractive appearance. Cellophane permits the honey to be seen and gives it needed protection.

I have been packing cut comb honey for about 20 years, and while I still do not know much about it I am learning everyday. Some of my methods and experiences may be of value to those thinking of putting out this type of pack.

What advantages does cut comb production have over section comb honey production? Since I have produced and sold considerable comb honey, both cut and section comb honey, my experiences have been that cut comb does have certain advantages.

In the bee yard, the big advantage is that cut comb produced in shallow supers without separators requires no different handling of bees than does producing extracted honey. Bees will work in cut comb supers just as quickly as in extracting supers. Cut comb supers do not induce swarming, and crop production per colony is not much if any less than extracted honey production.

With section comb honey one does have a swarming problem that is much greater. Fewer colonies of bees can be handled and there is a reduction in honey production per colony. Roughly speaking, I dare say one could produce almost twice the amount of cut comb honey as section comb with the same labor. It does not mean one gets twice the honey per colony, but one can take care of more colonies with the same labor.

Actually, we do not produce cut comb honey exclusively in any one yard or on any one colony, but simply put cut comb supers on colonies we think will fill them. Sometimes we put them on top of extracting supers, sometimes below, **but in no case should they be put on next to the brood nest as this always results in pollen stored in the cut comb honey supers.**

The production of cut comb honey starts with well-filled combs of non-crystallizing honey. Foundation is best fastened with split top bars since wires cannot be used. A major problem is to fasten the foundation in the supers without the foundation falling down, a minor, but important detail that took me 20 years to work out.

Cut comb honey can be shipped and handled with almost no breakage and leakage as compared with section honey. Cut comb honey can be packed in almost any size to suit the market. We have packed 12 ounce sections cutting four pieces from a shallow comb and 16 individual pieces cut from a standard shallow comb, and both sizes handle and ship very well. However, the smaller size seems to have better demand and we concentrate on the individual size.

The Labor and Packing Costs

OUR EXPERIENCE has been that there is not too much difference between cost of sections, cartons, and

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cases for section comb honey with that for boxes, cartons, and cases for cut comb honey. As to the cost of packaging, with the proper equipment and experience, one can cut, drain, and pack cut comb honey with about the same labor that it takes to fold sections, put in foundation, scrape, clean, sort, and pack section honey.

About the only advantage section comb honey might have is that there is a demand and market for section honey that no other pack will replace. Yet cut comb honey does have an appeal that will in time even overcome this advantage. Several years ago one of my salemen had such an experience. He never did handle cut comb honey of mine, but did handle a lot of section honey since he thought his customers wouldn't buy the little individual cut combs. He finally did take some cut comb honey around to the stores after the section honey sold out and while in a store one day, a lady asked the price of a regular 14 ounce section of comb honey. She thought the price 60 cents per comb too much and then spied some of the individual sections on display.

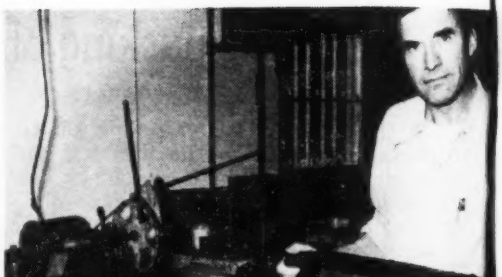
"My", she said, "aren't these cute. How much are they"?

The individual cut combs weigh about three ounces and was told the price was 25 cents each.

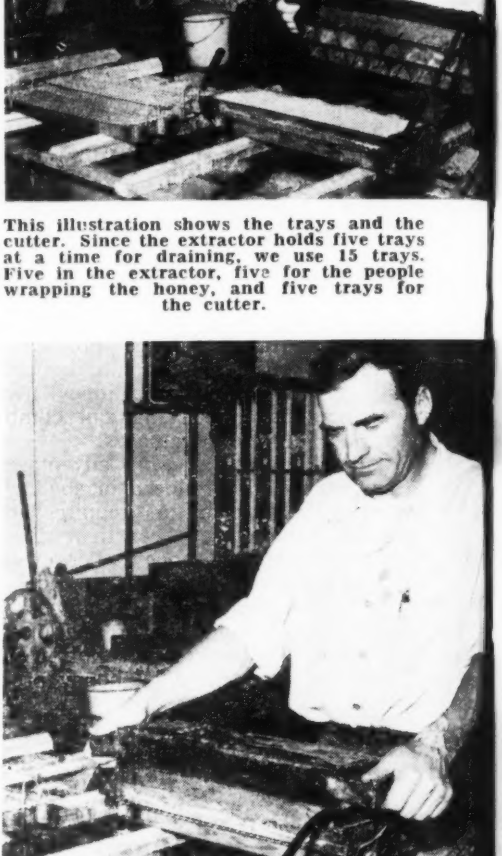
"Why, I'll take four of those", she replied, handing him a dollar.

Such is the nature of shoppers and as my salesman found out, it has to be respected.

Since cut comb honey has so many advantages, why isn't more of it packed and sold? For anyone that has never had any experience, the packing of cut comb honey is a very fussy business and full of booby traps. One cannot handle cut comb shallow supers the way extracting supers are handled. From the time the foundation is put into the frames until the honey is packed in boxes, it is an entirely different business. One has to be always clean, neat, and careful. One has to have a clean, warm shop to pack and store the supers until they are cut up and sold, and most beekeepers are not so equipped, neither psychologically or materially. Another very important item and perhaps the most impotant is that one



This illustration shows the trays and the cutter. Since the extractor holds five trays at a time for draining, we use 15 trays. Five in the extractor, five for the people wrapping the honey, and five trays for the cutter.



The cutter in action. Actually, the cutter should not be pushed into the comb as this will crush the cappings on the under side. We usually let the cutter go through with its own weight. With a steady flow of steam through the cutter, it takes about three minutes to melt its way through. An automatic fired steam boiler is a must with a steady supply of steam between two and four pounds pressure.

must have a type of honey that does not crystallize readily.

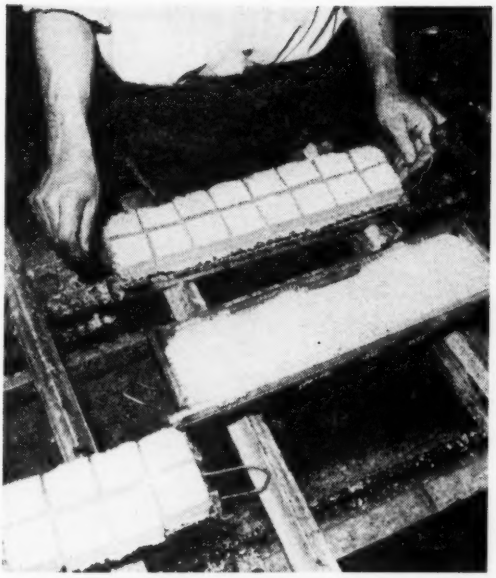
It goes without saying, crystallized comb honey is not a salable product and before one invests in time and equipment to produce cut comb honey, one must be sure on this point. It costs about a dollar in labor and material to pack one carton of individual comb honey with 24 three-ounce combs. If the honey crystallizes and all has to be unpacked and melted up, it doesn't take long to lose a lot of money.

While some stock size boxes are available for packing cut comb honey, they usually have to be custom-made with a minimum of about 25,000 in order to get the boxes cheap enough to make it worth while. So in order to even just start packing individual comb honey, one has to invest almost a thousand dollars in supplies and equipment. If it doesn't work out, then you are just stuck with it.

Equipment Used

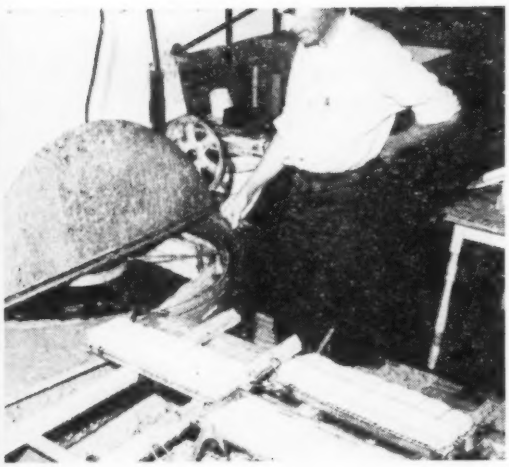
THE EQUIPMENT we use is illustrated and the first and most important is the cutter. This should be made of tinned copper and the correct size to cut the comb out of the frame and into sections at the same time. Do not use stainless steel as this material does not carry the heat fast enough to the cutting edges. The cutter must be heated by steam. We have used an electric heating element in the cutter for some years, but it is not at all satisfactory compared to the steady heat one gets from steam. Using 10 frames to a standard shallow super and cutting a well-filled frame into 16 pieces, each piece will weigh about three ounces. One can of course make the pieces any size he thinks best for the market. The cutter requires some accurate tin smithing and will cost about $20.00 to $30.00 to have it made, so one must make sure it is the right size.

The next important piece of equipment are the trays. The shallow combs are cut directly on these trays so that there is no handling. We have found the trays illustrated are well suited for the job. They just fit on hooks clamped on the radial rods of a 45-frame Simplicity extractor. These trays hang on the hooks so that when the extractor is running, the trays swing up at right



A tray of combs cut and ready for the extractor. The combs are cut over a tank so that discarded combs can be dumped into it and crushed and drained.

Combs placed in the extractor. Illustration shows the hooks clamped to the radial rods. One must be sure these hooks are clamped on tight so they don't move and one must be sure the trays don't hit the reel as they swing out under rotation.



angles and the cut edges of the combs will drain without the combs flying off the trays. In the early days of cut comb honey when cut combs were drained by gravity, it usually took a day in a warm room to drain the cut edges. With the extractor, the cut edges can be drained in five to 15 minutes turning at the slow speed, about 150 rpm. The illustrations show some of the other equipment needed.

This article simply gives the basic ideas of my method of cut comb production. There are many more details

The extractor in motion. With a fast strobe light, the photographer was able to stop the motion of the reel in the illustration to show the trays of honey in the vertical position as they are under full speed.

one has to work out both in experience and methods and anyone trying this will have to count on several years' experience before he can develop a proficient system. With nice full supers of honey, two girls packing and one man cutting and draining the combs, one can put out about 80 boxes of 24 each in an eight-hour day. Since most of this honey is packed in the fall and winter after outside bee work is finish-

The final step. In wrapping individual comb honey, female help is a must. In all the years we have wrapped individual comb honey, we never could get boys or men that would do this job very long. Girls don't seem to mind wrapping comb honey day after day, but boys or men will usually quit after a couple of days.

ed, it does make a nice winter job if one has a warm place to work. One cannot do much unless the temperature can be maintained at about 80 degrees all the time.

The cellophane is not sealed in any way, but the folded edges are held in place by the box. When the wrapped comb is placed in the box, the folded sides go into the box so they correspond to the sides of the box and the lapped edge where the two ends of the cellophane lap together must be at the top of the box. This must be done so when combs are stood up on display there will be no seam on the bottom of the cellophane and no danger of any honey leaking out. There is much more to this packing comb honey than meets the eye, but most beekeepers smarter than I am will no doubt take less than 20 years to learn how to do it.

Further studies on the chemotherapy of diseases of the honeybee

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TEN YEARS have passed since L. Haseman and L. F. Childers of Missouri published the results of their work on the control of American foulbrood with sulfa drugs. During this period considerable information has accumulated concerning this treatment and its positive and negative aspects have been widely (and often heatedly) discussed wherever bees are kept. It appears to be claiming converts daily.

These past few years have seen an increasing awareness of the possibilities of other drugs, the "wonder drugs" or antibiotics such as streptomycin, dihydrostreptomycin, aureomycin, terramycin, fumagillin, and so on in the control not only of American foulbrood but also of European foulbrood and Nosema disease. In fact fumagillin is now being prepared as a commercial product (Fumidil B of Abbott Laboratories) specifically for use against this last disease.

Work with antibiotics is being continued in various countries with encouraging results and it is probably safe to say that when these substances, as well as the sulfa drugs, are used intelligently, control of these diseases may be achieved; in fact, cures may even be possible with special care and effort.

The all-important question in this connection is to what extent the average beekeeper is able or prepared to exercise such care in his daily work. Those who so strongly advocate the use of these chemical agents for both control and cure of diseases such as American foulbrood have perhaps overlooked the fact that the methods they themselves use successfully in their own carefully planned and supervised experiments are not quite comparable to those employed in the average apiary. This may account for the not infrequent reports of the failure of this means of control. In consequence research should be directed possibly to the development of methods which are as foolproof as can be devised, so that everyone can use these substances with some assurance of success.

The work reported in this paper was carried out during the late spring and summer of 1953 and 1954 as part of a long-term project on the control of diseases of the honeybee. This project is concerned primarily with the testing of new drugs and antibiotics as they become available, against AFB, EFB, and Nosema. In addition, work is also in progress on such problems as stability of these chemical compounds, the most effective means of applying them in the apiary and, bearing in mind the cost of these materials, the minimum amounts which will give complete control of these diseases for the entire season.

During the course of this work it was demonstrated that fumagillin, an antibiotic which was found to be a powerful inhibitor of **Endamoeba histolytica**, a protozoan causing amoebic dysentery in man, exerted control of Nosema in caged bees. It was also found that terramycin was effective against AFB and that this compound as well as streptomycin were efficacious in controlling EFB. As new drugs and antibiotics are discovered which show promise of being effective against bacterial, virus, or protozoan diseases generally, they will also be tested in an attempt to obtain one or more which will be completely effective in small amounts, stable over an extended period of time and perhaps able to control more than one disease.

Terramycin fulfills, at least in part, two of these criteria but, as will be shown below, is not very stable. Sulfa drugs such as sulfathiazole and sulfadiazine, on the other hand, though quite stable, appear to inhibit only AFB.

American Foulbrood

Stability of sulfa drugs and terramycin in honey:

THREE YEARS ago an experiment was begun with three sulfa drugs to determine whether their anti-AFB activity would persist after storage in honey for several years. Accordingly each drug was mixed into honey at the rate of two grams per 20 pounds, five of which were then diluted with an equal weight of water, inoculated with AFB spores and fed at once, along with unmedicated inoculated control samples, to newly installed colonies. The remaining 15-pound lots were stored in a cool room.

Each subsequent summer five pounds of this medicated honey were tested in a similar manner. The results showed that the three drugs tested, sodium sulfathiazole, sulfathiazole, and sulfadiazine, completely controlled AFB even after three years' storage in honey.

In December 1953, one-quarter of a gram of terramycin was added to one eight-pound pail of honey and one-half gram to a second. Both pails were stored in a warm room to simulative hive temperature. In June 1954, both pails, along with a pail of untreated honey, were inoculated with a heavy suspension of spores and fed to individual colonies installed on dry comb. Within one month's time all three colonies showed evidence of AFB whereas other colonies receiving fresh terramycin did not.

Thus it appears that this antibiotic is not stable under the conditions of our experiments. This observation was borne out further by a report from the field that a colony which had been fed inoculated and terramycin-medicated honey in 1953 and had been free from AFB for the entire season, showed evidence of considerable infection in 1954.

Testing of miscellaneous drugs:

As mentioned earlier, various compounds were routinely tested for control of AFB and it will suffice perhaps to mention these. In all these tests the criterion of effectiveness was complete absence of disease for the entire season.

Sulmet or sulfamethazine, a sulfa drug prepared for veterinary use, was completely effective against AFB when fed at the rate of one tablet (one-half gram) per gallon, per colony. Terracon, an impure concentrate of the antibotic terramycin, was also effective when added to sugar syrup; one-half gram per gallon was sufficient. Achromycin, a more recently described antibiotic, was also effective whereas magnamycin was not; pyridinethione, another antibacterial substance, was ineffective.

Effective dosage of sulfadiazine and terramycin:

To determine effective dosages, a range of concentrations of these two compounds was added to 10-pound pails of 50 per cent sugar solution, each pail inoculated with spores from one AFB scale and the syrups fed to duplicate colonies of bees. Examinations at intervals throughout the summer revealed that by the end of this season AFB had developed in all colonies receiving less than 250 milligrams (one-quarter of a gram) of sulfadiazine or terramycin. When ten times the number of spores of AFB were used it was found that complete protection was also achieved with these quantities.

Nosema Disease

THE EFFICACY of a number of substances against Nosema has been tested. The test procedure which has been described elsewhere consisted, briefly, of feeding these materials in 30 ml. of 60 per cent sugar syrup containing about 30 million cysts of **Nosema apis** to bees in wire cages (100 bees per cage), removing dead bees daily and examining for the presence of cysts in the epithelial cells of the ventriculus. The results are presented below.

Treatments	Amts. used (mg./30 ml. syrup)	% infection *
Uninoculated	--	0
Inoculated	--	93
Inoculated + Fumidil B	20	7
Inoculated + Fumidil B	50	2
Inoculated + PA 106	30	48
Inoculated + Win 5047	15	90
Inoculated + Vi-oxaline	5 ml.	100
Inoculated + Erythromycin	20	100

* Expressed as per cent dead bees heavily infected with Nosema after 24 days.

The compounds tested, with the exception perhaps of erythromycin, have been shown to possess varying degrees of anti-protozoan activity. It is obvious that Fumidil B (containing the antibiotic fumagillin) was by far the most effective compound although PA 106 (now known as the antibiotic anisomycin) reduced infection by about 50 per cent. Since Fumidil B contains about one-twentieth its weight of pure fumagillin it is clear that a very small amount will control this infection.

Discussion and Conclusion

As the search for new antibiotics continues, it is to be expected that others will be discovered which will be effective against AFB, EFB, Nosema, and perhaps other diseases as well. Achromycin, for example, appears promising in controlling AFB; other substances such as erythromycin may also prove to be effective.

Stability of these substances under hive conditions is one of the most important factors to be considered in this connection.

Sulfa drugs are to be preferred perhaps to antibiotics by virtue of their greater stability as well as their lower cost, in the treatment of AFB. However, a "dual purpose" compound such as terramycin which appears to be effective against both AFB and EFB may be useful despite its relative instability, for it is evident that it is sufficiently stable to control AFB for a season.

Since the discovery of the ability of fumagillin to check Nosema, a number of workers have substantiated these findings both in the laboratory and in the apiary. There remain to be worked out suitable dosages, methods of application and related problems. Success in the field appears to have been achieved with between 130 and 190 mg. fumagillin per gallon of syrup. On the basis of the findings reported above less material may be required.

It is obvious that many other problems must be solved before the chemotherapy of bee diseases becomes a recognized and established practice. One of these, for example, is the matter of drug resistant AFB, EFB, or Nosema organisms; another is the possible contamination of the surplus honey with detectable amounts of these agents. Further research work on these and related problems is certainly indicated.

Our Cover Picture

THIS MONTH our cover picture shows a honeybee emerging from Pima S-1 Cotton flower being dotted with pollen from the plant. As it dips into the flowers of other cotton plants in search of nectar it will cross-pollinate those plants. Although cotton is a self-pollinating plant, bee culture scientists of the U. S. Agricultural Research Service are finding in tests at Tucson, Arizona, that cross-pollination with bees increases cotton yields.—U.S.D.A. photo by Forsythe.

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Honey does something for candy

ALFRED E. LEIGHTON, Riverdale, New York City, N. Y.
Consulting Candy Technologist and Food Chemist

Candy using honey as an ingredient, made by H. Cobb, Florida.

HISTORICALLY, honey is one of the oldest sweeteners known to man. It has always been esteemed as something superlative and delectable for eating. It is therefore not strange that other material things were sometimes likened to honey, mentally and verbally, when the connotation of goodness was implied. Thus, we find frequent allusions to honey in the Bible.

Two such references may be mentioned (1) the description of the Land of Canaan as one "which flowed with milk and honey"; (2) the legend of Samson who slew a lion and departed from the scene. On returning to the carcass after a lapse of time, he found that a swarm of bees had established themselves therein, and made honey "of which he did eat for sustenance"—so "out of the strong, came forth sweetness".

It probably did not require a great deal of ingenuity on the part of the ancients to mix, knead, and mould available foodstuffs, such as sesame seed, grains, nuts, and fruits, with honey, to make wafers. These formed a more solid or easily transportable food which could conveniently be carried on pilgrimages, and were also useful for other living occasions.

With nothing to the contrary being known, we might regard the foregoing as the first example of the use of honey in sweets making. So far as is at present known, our earliest information on the subject of honey in the deliberate making of candy, is, that it quite understandably originated among the peoples bordering on the Mediterranean, who were quite familiar with the virtues of honey as a sweetener and as a foodstuff.

Why Honey is Good in Candy

Some of the properties of honey that make it desirable as a confectionery ingredient are: its natural goodness as an easily digested sweet, its delicate flavor (when properly conserved in manufacturing operations), its ability to increase the sweetness of confections that are not sweet enough; and last, but not least, its property of helping to keep sweets fresh.

This last characteristic depends upon the property that honey possesses of holding moisture, and perhaps attracting additional moisture to itself, or the items containing it. Thus, the drying effects, due to age in candies are canceled out; and a moisture balance is maintained, to a degree, that is characteristic of fresh candy. However, by the same token, when honey is used to excess in any candy formula, the property of moisture attraction which honey possesses, can be a nuisance, and become detrimental. Thus, when too much atmospheric moisture is attracted, the candy so affected becomes moist and sticky; especially if due care and "know-how" have not been exercised in the cooking processes.

The Types of Candy That Are Up-Graded by the Addition of Honey

The earliest and best type of

confection having honey as an ingredient, in which its use was at one time traditional, is nougat. Under the name of Nougat Montelimar, this confection originated in France. It is formulated with sugar, corn syrup, honey, almonds, pistachio nuts, cashew and other nuts, as well as glace fruits, etc. The process of making Nougat Montelimar, includes whipping with egg albumen to produce the light aerated confection which is so characteristic of good nougat.

A typical formula for Nougat Montelimar, which a retail confectioner, (who makes his own sweets in the back store candy kitchen) can use, is as follows: Granulated sugar 8¾ lbs.; corn syrup 7½ lbs.; honey (floral type, strained) 2½ lbs.; almonds 4¼ lbs.; pistachio nuts 1 lb.; glace fruits (cherries, pineapple, kumquat, etc.) 1¾ lbs.; egg albumen powder 2 ounces; vanilla extract quantity sufficient.

The Process: Cook the sugar and corn syrup to 266°F. (at sea level) add the honey and bring back to a boil. Prepare beforehand: (1) the albumen: by dissolving in a scant pint of water, and whipping to a light foam, in an electric mixer; (2) Dry all nuts and fruits in a warm oven and keep warm (to prevent weeping). Pour the cooked sugar, corn syrup, honey batch into a nougat beater and start the beaters, then add the whipped albumen, beating until the mass is light and firm—add the nuts and fruits and mix well. Pour the confection on a wafer lined slab between ½ inch of ¾ inch bars—cover the pour with wafer paper. Let set, and when cool enough to handle, divide into slabs and cut to size with a knife or machine cutter—wrap pieces in waxed paper.

Chocolate Coated Honey Almond Chewy Nougat

(1) Egg albumen powder, 6 ozs.; honey, 5 lbs.; water, 12 ozs. (2) Corn syrup, 7½ lbs.; honey, 2½ lbs.; sugar, 7½ lbs.; water, 1 quart; orange oil, 1 teaspoon; salt, ½ ounce; almonds (broken roasted), 3½ lbs.; coconut oil (86° melting point), 12 ozs.

Process: Part 1—Dissolve the albumen in 12 ounces of water, place in a nougat beater, add 5 lbs. honey and beat to light foam. Set aside until needed. **Part 2.** Heat the corn syrup, honey, sugar, and 1 quart of water, bring to a boil. Wash down the crystals of sugar on the sides of the kettle. Cook to 280°F (at sea level), pour into first mixture and mix rapidly; reduce mixer speed to slow; add orange oil, salt, almond pieces, and coconut oil (the latter slowly), and mix until blended. Do not overmix. Pour onto an oiled cooling slab between bars of desired height. Don't disturb until thoroughly cool and set. Cut to desired size and coat or dip in chocolate.

Honey Butter Rum Toffee

Butter (salt), 1¼ lbs.; corn syrup, 5 lbs.; honey, 2½ lbs.; confectioners ("C") sugar, 3¾ lbs.; sugar (granulated), 5 lbs.; cream 20 per cent, 2½ pints; coconut oil (86), 10 ounces; evaporated milk, 5 pints; brazil nuts (sliced) 5 lbs.

Process: Heat butter in a kettle until light brown. Add corn syrup, honey, "C" sugar, granulated sugar, and cream. Stir continuously and bring to a boil. Add the coconut oil, and evaporated milk slowly (about 1 pint at a time) and continue boiling to 244 to 248°F. (at sea level). Add nuts and continue cooking to 255°F. Remove from heat and add rum flavor in a sufficient quantity and mix. Pour on oiled slab and cool. Score to size while still plastic. When cool, cut and wrap.

Chocolate Honey Fudge

Granulated sugar, 8 lbs.; corn syrup, 4 lbs.; honey, 1¼ lbs.; chocolate liquor, 1¾ lbs.; evaporated milk, 4 lbs.; coconut oil, ½ lb.; fondant, 4¾ lbs.; frappe, 1 lb.; salt, ¾ ounce; almonds (roasted, sliced), 3 lbs.; vanilla—butter flavor: quantity sufficient.

Fondant Formula: Sugar, 80; corn syrup, 20; honey, 10. Cooked 244° (sea level), cooled 110° before beating.

Frappe Formula: Corn Syrup, 50; honey, 50; egg albumen, 1 lb. in 2 lbs. water. Made by cooking corn syrup to 245°F. adding honey and mixing. Place the mass in a beater, adding albumen gradually, and beat the mixture until light.

Process: Heat sugar, corn syrup, honey, chocolate liquor, and half the milk, in a kettle fitted with stirrers and scrapers. Mix and when at boil, add balance of evaporated milk gradually in a thin stream, and cook to 245°F. (at sea level). Cool to 200°F. and add coconut oil, fondant, frappe, salt, and

flavors. Mix until fondant is all melted. Add nuts, and mix again. Pour onto tables cover with oiled waxed paper. Score into squares when fudge has nearly set. Break off when cool at scored parts.

Chocolate Honey Orange Marshmallow

Sugar, 7 lbs.; corn syrup, 5½ lbs.; honey, 2¾ lbs.; gelatin (225 Bloom), 6½ ounces; water, 3½ pints; orange oil and orange color, quantity sufficient.

Process: Mix gelatin with 1¾ pints water. Set aside to soften for at least 30 minutes. Place sugar and 1¾ pints of water into a kettle and heat until dissolved; just short of boiling. Add the gelatin and its water, plus the corn syrup, and mix until every particle of gelatin is dissolved. Add the honey and blend. Transfer mixture to beater and beat until one measured gallon weighs about 3¾ lbs. Add color, flavor, and blend. Pour onto tables covered with clean Kraft paper. Sprinkle surface with a 50-50 rice starch—confectioner's sugar mixture. When the marshmallow has set, turn it over to expose the paper surface, then moisten the paper with water and peel off the paper. Sprinkle the marshmallow surface thus exposed with the rice starch-confectioner's sugar mixture. Allow to stand until dry then cut into pieces of correct size with a water-moistened gang-roller knife. Roll cut pieces in starch-sugar mixture. Allow them to stand awhile, then dip, or coat with chocolate.

Confectionery Outlets for Honey

THE CONFECTIONERY outlets for honey will be found largely among the manufacturing retailers—those who sell at retail from their own stores and manufacture in a central factory. Usually such organizations make specialties in which the higher priced ingredients can find a place because the retail selling prices of their candy specialties cover the costs involved.

Then there is the smaller operator of the neighborhood candy kitchen, who makes his own candies in a kitchen at the back of his retail store. Such a one often builds up a reputation for fine specialties and novel candies among his neighborhood customers, and beyond. He is a good prospective customer for honey in small containers (5 gallon).

The manufacturing wholesaler should not be overlooked, although he works on narrow profit margins which have necessitated a swing over to invert sugar in place of honey. Occasionally manufacturing wholesalers make confections in which honey is used for distinction. In such instances honey is purchased in 54-gallon barrels. Volume outlets require volume purchases and that applies equally well to the manufacturing retailers mentioned in the foregoing.

Some Pointers for the Honey Marketer

So far as the confectioner is concerned there are some plus values conferred on candy when good honey is an ingredient therof. Every care should be exercised both by the marketer and the user to see that none of the special aroma and flavor values are destroyed or depreciated in the preparation of the honey for marketing, or in its subsequent use by the candy maker.

A confectioner who buys an orange blossom honey, or another of the distinctive or floral types, as a candy ingredient, wants to have his finished product speak for itself, and tell the consumer by its outstanding flavor that honey is one of the good ingredients. Unless that flavor comes through, the candy maker would not have any good reason for paying a premium price for honey; when the more economical invert sugar would serve equally well.

Therefore, honey intended for confectionery, should be liquid, clean, extracted or strained, free from wax, comb parts, splinters of wood, bees and all extraneous matter. It should also be packed in clean containers, regardless of whether such be cans or barrels. Each flavor type should be kept separate, and not mixed with any other if distinctive materials are to be offered to the confectioner.

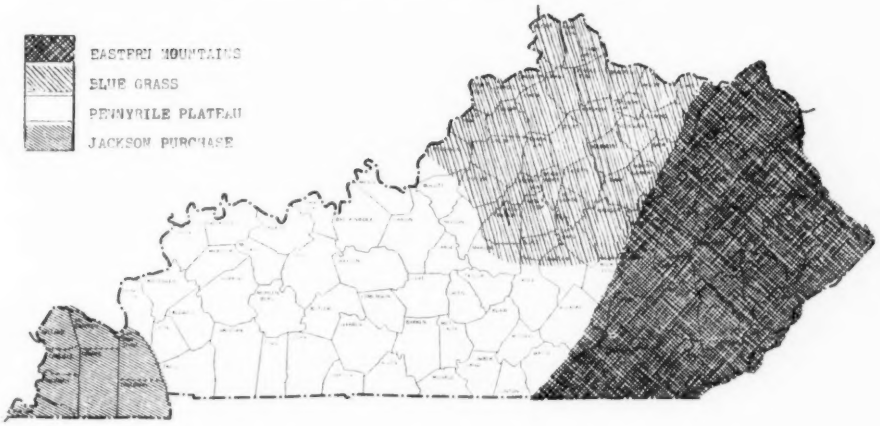
How Beekeepers Can Increase the Use of Honey in Confectionery

The use of honey in candy making has fallen off considerable since and during the war years. **Candy manufacturers and their personnel who read their trade magazines have not seen an advertisement relating to honey and its use in confectionery, for many years.** The trade should be reminded of what

(Continued on page 317)

Beekeeping in Kentucky

HARVEY B. LOVELL, University of Louisville



KENTUCKY IS a state with a varied topography. The eastern part of the state is mountainous and contains a southern extention of northern plants. The central part is flat with areas of rolling hills and rounded knobs, and the western part is low and often swampy where it is bounded by three great rivers, the Tennessee, Ohio, and Mississippi.

According to the Agricultural Marketing Service there are 127,000 colonies of bees in the state which places it 20th in rank among the 48 states; and the average yield for 1954 was 15 pounds per colony. Most of the bees are owned by small beekeepers with less than 25 colonies, although there are several men with from 100 to 300 stands. Several expert operators report that their bees stored as much as 75 to 100 pounds in favorable areas in spite of the drought which began about the middle of June. The season of 1951 was a good one and surpluses of 200 pounds of honey from white Dutch and sweet clover were regularly obtained.

During the last three years the drought which has hit much of central and southern United States has been very hard on beekeepers in central and western Kentucky, but has not been nearly as serious in the eastern part of the state where there has been more rainfall as well as a more varied honey flora. In Kentucky, generally in early spring, the maples, willows, dandelions, and many other small herbs give the bees an early start. Other spring species include sassafras, spice bush, redbud, silky dogwood (bees rarely work the flowering dogwood) service berry, blackberry, hawthorn, locust, honey locust, tree-of-heaven, and sumac. Also there are many small herbaceous plants which yield nectar in sufficient amounts to be of considerable value, such as dead nettle, corn salid, spring beauty, and many others. There is a lull during July and August when the bees loaf but large fields of fall boneset give them an early start in late August. Goldenrods are abundant through September and frost aster covers the fields in October.

Among the cultivated crops of value to bees are alfalfa which sometimes yields fairly well in hot dry weather, and buckwheat which occasionally produces a very dark honey. The chief cash crop in the state is tobacco which is sometimes reported to produce enough nectar to give the honey a tobacco flavor. Thousands of acres are planted in corn which produces copius amounts of pollen which is often collected by honey bees. Strangely enough there are occasional reports of "corn-tassel honey," based partly on the visits of the bees to the tassels for pollen and partly on the fact that bees sometimes

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suck moisture from the bases of the leaves and even from cracks in the stems; corn of course secretes no nectar at any time. The state is divided into at least four distinct regions in which conditions differ:

1. **The Eastern Mountains.** Trees are the main source of surplus honey in this area. Locust, tulip poplar, basswood, and sourwood are the chief species. Beekeepers rarely fail to make a better-than-average crop in this area, partly because it rains more often in the mountains and partly because trees have such deep roots that they are less affected by droughts. Sourwood is fairly common, especially in the southeastern region, but only a few beekeepers in the area are taking advantage of it. The most important fall species is the golden honey plant known locally as "stickweed", which grows to a height of six or eight feet and has irregular clusters of yellow flowers in compound heads. It is also known as wing stem and yellow ironweed.

2. **The Blue Grass.** This is the famous horse-raising country where Kentucky thoroughbreds are the chief crop. So much of the central blue grass is in pasture grasses that there is not much for bees to visit. Kentucky fescue and blue grass are widely planted and of course, neither yield any nectar. The sweet clovers, white Dutch, Ladino clover, and alfalfa are occasionally planted, however, and often escape to the roadsides. Soy beans are extensively planted but yield very little in this state. Goldenrod and asters often yield a fair fall crop and furnish plenty of winter stores. Between the inner and outer blue grass there is a ring of hilly country (the Eden Shales) which is considered one of the best beekeeping areas of the state. Locust often yields a spring crop, and coral berry or buckbrush is one of the principal sources in summer. The State University is located at Lexington in the heart of the blue grass. Two beekeeping experts are on the staff, Drs. Price and Lee Townsend, the latter teaching a course in beekeeping each spring. Jefferson County in the extreme western end of this region is the home of a large number of beekeepers. Raymond Layne teaches a course in beekeeping at Valley High School and in the shop each boy makes nearly all his own equipment and is required to operate a colony or two.

3. **The Pennyrile Area.** This includes a large section of treeless land known as the barrens. In the northwestern part of the area lie the western coal fields, a hilly section where strip mining is practiced. Porous limestones underlie most of the pennyrile with the result that, except for the larger rivers, the drainage is underground. Sink holes and caves, including Mammoth Cave, lower the water table so much that trees are scarce except in the deeper valleys along rivers. Bitterweed is often very abundant in late summer in wornout pastures. Many fields are blue with vervain in August. Sparkleberry is common in the hills in the southern part of the area. Otherwise the honey plants are about the same as in the bluegrass, but there is a great deal more uncultivated land. Frost aster often produces fall crops as late as October. In the western part of the pennyrile, Spanish needle is abundant, and the honey is very popular locally. Sometimes persimmon takes over waste land and produces a small surplus.

4. **The Jackson Purchase.** This low flat area abounds with swamps and small ponds and is bounded by the Tennessee, Ohio, and Mississippi. The river bottoms are overrun with bur cucumber and the cornfields in low lands with bluevine. Most of the ponds are filled with buttonbush. Black and swamp gum grow in the swamps. This area is undeveloped by beekeepers but it has definite possibilities.

Wax from Sugar Cane

A NEW WAX polish containing sugar cane wax as the chief ingredient is now on the market in Brisbane, Australia, according to the November issue of FOOD TECHNOLOGY IN AUSTRALIA. The wax is reportedly obtained from the grey sludge discarded as waste in the processing of sugar cane.

The Australian Bee Journal. Jan. 1955.

Part V

GEORGE P. GEORGHIOU, Nicosia, Cyprus

(Continued from April)

1891 A.D.—The first law in Canada for the suppression of bee diseases (mainly foulbrood) was passed by the Province of Ontario. **William McEvoy,** the Bee Inspector, endeavored to rid the apiaries of foulbrood without destroying the property of the beekeepers. He practiced the shaking method which came to be known as the McEvoy method.

John Hewitt (England) sent two Tunisian queens to T. G. Newman, editor of the American Bee Journal.

E. C. Porter (U.S.A.) introduced a modification of the existing type of bee escape (see 1870) that is still in use.

Frank Benton took charge of the apicultural investigations in the Department of Agriculture, Washington.

1892 A.D.—Langstroth's "The Hive and the Honeybee", as r é v i s e d by Charles Dadant in 1888, was translated into Russian by Kandratieff.

G. W. Demaree, described his scheme for swarm control. This he modified in 1894. His plan has since been mentioned in the bee literature many times over. Many beekeepers adapted his plan or its various modifications. Demaree proposed to transfer the combs containing brood from the brood chamber to an upper story above a queen excluder. One comb containing unsealed brood and eggs was left below with the queen and the balance of the space filled with empty combs to provide ample space for egg laying and relieve the congestion of the brood nest.

1893 A.D.—Ursmar Baudoux (Belgium), reported that by building comb foundation with slightly larger cells, he could get larger bees, with longer tongue reach. Instead of 825-850 cells to the square decimeter, which is the standard, he built foundation with 750, 740, 730 to as low as 700 cells to the square decimeter. Similar experiments were made by **Pinchot** in France. **O. W. Park** and **Roy A. Grout** in 1930 showed that the size of the brood cell is the factor in determining the size of the adult worker bee and that significantly larger bees are obtained through the use of artificial foundation having enlarged cell bases. However, while Baudoux recorded an increase of from 11.9 per cent to 25 per cent in tongue reach as the size of brood cells increase from 850 cells per square decimeter to 700 cells per square decimeter, they were able to record increases of only 2.07 per cent to 1.40 per cent in length of proboscis. Whether the increases in measurements of the worker bees recorded by these workers are significantly related to honey production has yet to be proved.

1895 A.D.—Death of **L. L. Langstroth** at Dayton, Ohio.

E. B. Weed p a t e n t e d a machine that could turn out wax sheets for comb foundation in continuous rolls. Until this date, practically all the sheeted wax used in making comb foundation was made by dipping a thin board into melted wax and then into cold water. The two sheets of wax of the size of the dipping board, thus produced, were passed through the rolling press. The Weed machine turned out a better and more economical product, in greater quantities, and was adopted by many manufacturers of comb foundation. Ninety-nine per cent (99%) of all the comb foundation made in the U.S. by manufacturers is first sheeted on the Weed's machine and then put through embossing rolls generally called "comb foundation machines".

1897 A.D.—First International Beekeeping Congress held in Brussels,

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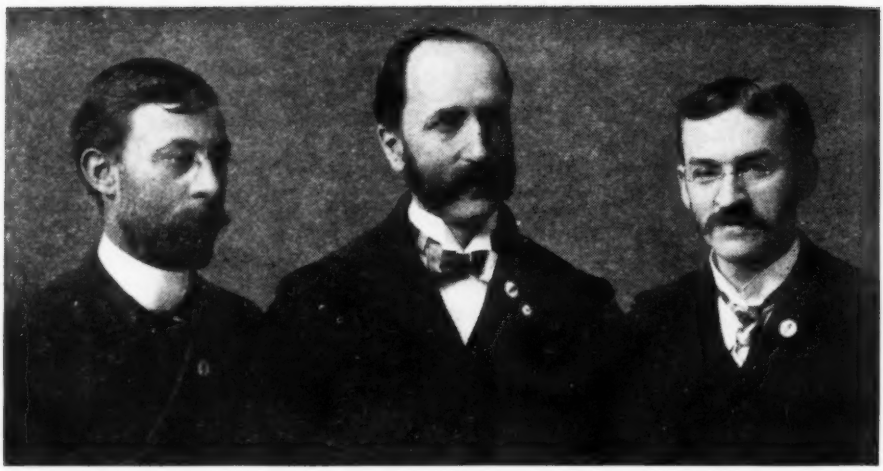


E. R. Root W. Z. Hutchinson Geo. W. York

Belgium.

1899 A. D.—The National Beekeepers' Association was founded at a meeting in Philadelphia. The old National Beekeepers' Union was dissolved.

1902 A.D.—Death of **Charles Dadant.**

G. F. White (U.S.A.) first demonstrated that American foulbrood was caused by a bacterium which he named **Bacillus larvae.**

Appearance of a self-draining bottom board manufactured by The A. I. Root Company offered as a combination bottom board and hive stand. The floor slanted downward from rear to front. Later abandoned.

1904 A.D.—The Isle of Wight disease was discovered on the Isle of Wight south of Great Britain. It first appeared on the mainland of England in 1907.

E. W. Alexander (N.Y., U.S.A.) made known his method for treating colonies infested with European foulbrood. The method is known today as the Alexander method, and is based on killing the old queen, and requeening after 20 days. The Alexander method is now the basis of all methods of control of European foulbrood.

1905 A.D.—The first airplane flight of **Wilbur** and **Orville Wright** at Kitty Hawk, North Carolina, was first recorded in the January 1, 1905 issue of Gleanings in Bee Culture. The Wright Brothers were unable to record their feat in any scientific journal and, therefore, asked their personal friend, A. I. Root, to record it in Gleanings. So it remained for a bee journal to report man's first successful attempt at flight.

Frank Benton visited Caucasus and introduced the Caucasian bee into the United States.

"ABC of Bee Culture" translated into French. A second edition appeared in 1909.

1906 A.D.—Gaston Bonnier (France) reported that certain bees confine their visits to a certain limited portion of a row of plants all of which were in bloom. (See 1909 and 1939).

Passing of the **Federal Food and Drugs Act.** This prohibited adulteration of extracted honey, which was quite common at that time.

1907 A.D.—Dr. E. F. Phillips, succeeded Frank Benton as head of the Division of Bee Culture of the United States Department of Agriculture, in Washington (see 1924).

"ABC of Bee Culture" translated into German by **Fried. Greiner.**

1908 A.D—Introduction of a new type of queen excluder, consisting of wire bars held at the required distance apart by means of soft metal crossties at every two or three inches.

1909 A.D.—Gaston Bonnier (France) continued his observations on the activities of foraging bees (see 1906) reported that there is very little mixing in the marked populations of bees when their feeding sources were two yards

(Continued on page 313)

How many can you identify?

1. .....

2. .....

3. .....

4. .....

See page 316 for correct answers.

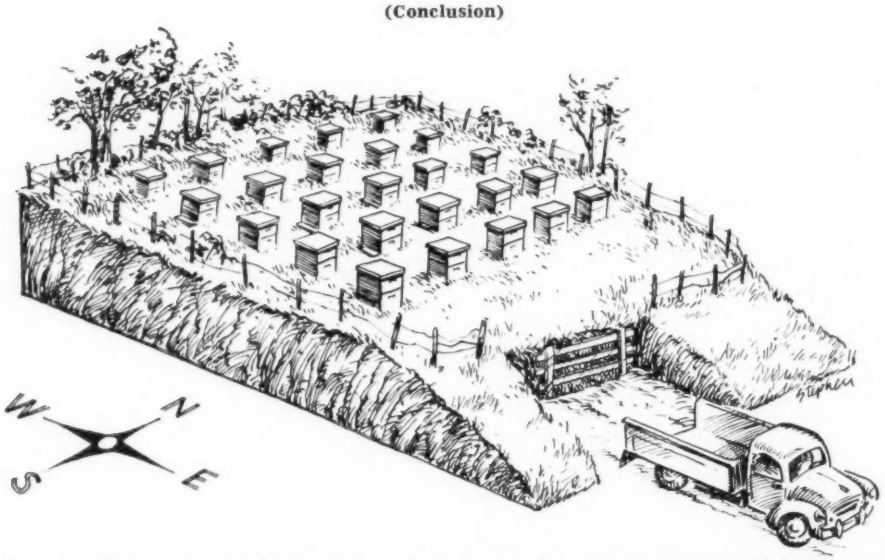
Choosing the apiary site

Consider the beekeeper and his helper when selecting a location.

ROGER A. MORSE, State Plant Board, Gainesville, Florida

Part III

(Conclusion)



A loading hole near an apiary is a great labor-saving aid. If the loading hole is at least four feet high it can serve as a gate into a fenced-in apiary.—Illustration by V. R. Stephen.

OUR MODERN industrialists have long realized that good working conditions speed up production. The beekeeper and his helpers will work with greater ease and comfort in a well-planned beeyard.

There are many factors which the beekeeper must consider to make his work easier and more convenient. Honey production is the goal so the bees come first if a choice is to be made. But a location should be convenient to work in. A great deal of time is lost every year by beekeepers who have to drive over poor roads and work in locations where bees are not well situated.

A loading hole in a bee yard is a great help. It should be so constructed that when a truck is backed up on it the truck bed is level with the ground. A wheelbarrow with a large pneumatic tire makes it possible to wheel loads of supers on and off the truck. Loading bees is also simplified and considerable lifting avoided.

Hydraulic lifts are popular with some beekeepers but are very costly. The extra weight of a hydraulic tailgate is an inconvenience. In addition to this the truck must be left running and there is always some delay while the gate is being raised or lowered with its load.

Locations with a gentle slope are good for the bees and also make the construction of loading holes easy on the lower side of the yard. If the loading hole is four or so feet high it will serve as a gate into an apiary which is fenced.

The operator must also consider the location of the colonies where loading holes and wheelbarrows are to be used. The truck should be parked so that it won't interfere with bee flight. Using a wheelbarrow in front of colonies may also interfere with bee flight and in fact disturb them to the extent that extra stings result. It is also helpful if empty supers can be pushed uphill and full supers wheeled down.

The beekeeper should do his utmost to protect passers-by and the people in

the vicinity from being stung. One cannot depend on keeping people out of the bees' way, so the next best thing is to keep the bees where they won't bother people. In addition to placing the bees some distance from houses, a hedgerow of pines, cedars, or multiflora roses may be planted around the yard. For a permanent location the time and trouble spent setting out a hedge would pay. After the hedge has grown to a height of six or seven feet the bees are forced up in the air and above heads of people.

Every beekeeper with more than one yard has his favorite location. It is usually the one in which the largest crops are secured. At the same time it may be a location more favorable for bee activity throughout the year or it may be a convenient place for the operator. Permanent locations like the homes we live in deserve consideration and planning, and a little extra time spent finding and preparing locations means dollars in future years.

A final note of importance when considering the operator is the rent paid for a location. In past years a beekeeper was expected to pay a small fee in money or honey for a remote spot on a farm. The honeybee has received a great deal of favorable publicity during the last decade and most farmers are aware of the benefits they receive from having bees on their farm. In permanent or semi-permanent pastures and hay fields honeybees accomplish about 95 per cent of the pollination of the clovers which appear year after year. **Rentals should be a thing of the past** and it is the beekeepers' obligation to point out the service the farmer is receiving for giving up a small plot of land for a bee yard.

Bee Lore

Edited by Walter Barth
Illustrated by V. R. Stephen

HONEY becomes a lethal weapon. In the far distant past, when Pompey and three of his cohorts (about 1,000 men) were traveling through the mountains, Heptakometes, an enemy of Pompey, placed poisonous honey along the route. When the soldiers of Pompey ate the honey they became senseless. Just at that time they were ambushed and killed.

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Editorials

1955 Price Support for Honey

THE DEPARTMENT of Agriculture announced an over-all average support price for the 1955 crop of three-tenths of one cent less than the 1954 support price. Exact prices by flavor and region are discussed on page 299.

At the National Meeting in Chicago in January, the American Beekeeping Federation and The Honey Industry Council of America, requested that the Department of Agriculture maintain the same dollar and cent level as was used in 1954, feeling that honey price support was already low enough and that further reduction would be detrimental to the industry.

The new support level is at 70 per cent of parity, the same as it has been for the past three years, but parity has been decreasing which results in the lower price. The 1954 season was one-tenth of a cent under the 1953 season and the 1955 season will now be three-tenths of a cent under the 1954 season. Continued whittling away at the support level will soon reduce its effectiveness to a point where the law might as well be repealed.

With the small honey crop harvested in 1954, it is doubtful that the government will have to dispose of any surplus honey to the school lunch program this year. Honey has been selling at considerably above the support level, so we might ask "Why is honey price support needed?" We look upon it as insurance against a depressed honey market. In our estimation, price support is now lower than it should be, but it does prevent the price of honey from being driven down to an even lower level should we have a bumper crop, as occurs every few years. Also, the loan feature of the support program has been very beneficial to the industry in that it has permitted producers to hold their honey until it could be marketed advantageously.

There is still a great lack of understanding in government circles as well as the general public of the important role of the honeybee. Much education is still needed and for this reason the industry will do well to support their local and national beekeepers' associations so that this education may be continued.

Making Bee Meetings More Interesting

IT IS ONE thing to start a beekeepers' association and still another matter to keep it going.

In some instances, associations fall by the wayside because programs are not sufficiently interesting to attract people who should attend. There should be a program committee to plan future meetings. The speakers should be qualified to present topics assigned them. There should be time at the close of each talk for discussions from the floor. Talks should not be too lengthy. The chairman should exercise his prerogative in shutting off, as diplomatically as possible, long-winded discussions that may be irrelevant to the topic discussed.

A panel discussion on some timely topic, intelligently planned and carried out is likely to be worthwhile. It is necessary, however, that all of the participants be prepared to give lucid presentations of various phases of the topic discussed. The leader of the panel should announce the topic to be discussed by the panel, then call on those taking part, after which he should summarize what has been said and give an opportunity for remarks from the floor.

A movie film on bees and beekeeping, shown periodically, should appeal

to beekeepers. "Bees for Hire", put out by the Texas Oil Company, can be obtained from any of the Texas Company Division Offices in New York City, Buffalo, Boston, Atlanta, and other leading cities. "The Honey Industry", a 15-minute, color, sound movie, is a good honey promotional film, and copies can be obtained from the Honey Advisory Board, 417 S. Hill Street, Los Angeles 13, California.

Another movie film is entitled "The Pollination of Alfalfa". This is produced by Hercules Powder Company and shows the use of the honeybee for pollination in alfalfa production. To secure a booking, simply write to Film Library, New York State College of Agriculture, Cornell University, Ithaca, New York.

It has been found that a light lunch following each meeting gives people a chance to become better acquainted. All formality is likely to disappear while nibbling on a doughnut and sipping some hot coffee. Visitors should receive a cordial welcome.

The beekeeping industry needs more active beekeepers' associations, state and county. County associations are at the very grass roots and, in fact, a part of the backbone of our industry. Let's do all possible to help these associations.

Steel Barrels for Storing and Shipping Honey

DURING THE years the 60-pound tin can has been used quite generally for storing honey. This is a convenient unit to handle. Such cans when filled with honey and shipped by the car loads are usually placed in wooden cases that protect the cans. When shipped singly or in small lots by motor freight each can is placed in a paper carton.

For some years beekeepers in Canada have been using 70-pound round steel barrels which last for years. Many commercial producers are now using large steel barrels, each holding about 50 gallons, which can be rolled along a warehouse floor and onto a truck. They can also be renovated quite easily.

It seems probable that steel barrels may eventually replace tin cans for handling honey in quantity. While the initial cost of barrels may be greater than tin cans, the durability and utility of steel barrels covering a period of years may make them more economical.

We Need More Young Beekeepers

AT THE RECENT meeting of Ohio beekeepers in Columbus, March 22 and 23, one of the speakers mentioned the importance of encouraging our youth to take up beekeeping. As we visit bee meetings over the country, we find comparatively few young people in attendance. Young beekeepers are needed today to take the place of older beekeepers who pass on or become too old to carry on.

The 4-H Clubs are doing splendid work as are the F.F.A. in promoting beekeeping among their members who are interested. The Boy Scout organization offers a merit badge in beekeeping. Such organizations are doing a worthy work in furnishing an opportunity for young people to become familiar with handling bees and producing honey.

The main problem in promoting beekeeping among young people is to find suitable leadership. In some instances leaders of the youth organizations do not know much about beekeeping and have to depend upon beekeepers in their areas to help furnish the necessary leadership for carrying on beekeeping projects successfully. It would seem that this need for leadership offers an opportunity for experienced beekeepers to give of their time and ability to help instruct our youth in the fundamentals of beekeeping.

Beekeepers' associations, county and state, could render our industry a service by having their programs geared down to the youth level, also to the level of those interested in bees who need help in solving problems common to beginners.

Possibly junior bee clubs sponsored by beekeepers' associations would be found helpful. More young beekeepers are needed today and it is essential that they be encouraged in order to strengthen our industry.

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Easy and good

MRS. BENJ. NIELSEN
Aurora, Nebraska

Three "honeys" that you will like. — Photo courtesy Kellogg Company.

FRESH RHUBARB. Um! Doesn't that first batch in the spring taste good? And especially if it is delicately flavored with a mild-type honey. As you know, honey seems to have a special affinity for fruits, and rhubarb is no exception. This golden sweet with the tart, tangy flavor of fresh rhubarb is superb! Wash and cut fresh rhubarb into one inch lengths, simmer gently and not too long in a very little water, then add mild-flavored honey to taste and serve thoroughly chilled. Perhaps you will enjoy varying the taste with a bit of vanilla flavoring and pointing up the color with a dash of red food coloring if your rhubarb is not of the strawberry or ruby type strain. Serve with breakfast, lunch, or dinner with feathery light honey buns and be prepared to take a bow!

When you tire of this fruit as sauce, try your hand at a rhubarb custard pie, a la honey, of course.

Honey Buns

One cup warm potato water or milk, 2 teaspoons salt, 6 tablespoons shortening, ¼ cup honey, 2 packages quick-acting yeast, ½ cup lukewarm water, 2 eggs, well beaten, and 6¼ cups flour, sifted before measuring.

If using potato water, drain from cooked potatoes, add salt, shortening, and honey. If using milk, scald and proceed as above. Cool either liquid to luke warm. Dissolve yeast in lukewarm water; let stand five minutes, then add to first mixture. Add eggs, well beaten. Add flour gradually, beating well. When all of the flour has been added, turn mixture onto a lightly floured surface and knead until smooth and elastic. Place in greased bowl, cover, and let rise until double in bulk. Pat dough into a rectangle one-half inch thick and cut into one inch strips.

Dressing for Buns

Three-fourths cup butter, melted, 1½ cups sugar, and 1½ tablespoons cinnamon. Part honey may be used and is combined with the melted butter.

Blend sugar and cinnamon. Dip strips in melted butter, then roll in sugar and cinnamon mix. Coil into rolls on well greased baking pans, cover and let rise until double in bulk. Bake in moderate oven, 375 degrees F. about 25 minutes.

Honey Rhubarb Custard Pie

Three cups rhubarb, cut in 1-inch lengths, 2 eggs, beaten, 2 tablespoons milk, 1 cup honey, 4 tablespoons flour, ¼ teaspoon salt, ¼ teaspoon nutmeg, and 1 tablespoon butter.

Line pie plate with pastry. Combine beaten eggs with milk, honey, flour, salt, and nutmeg and mix with rhubarb. Pour into unbaked pastry lined pie plate. Dot with butter and crumb topping. Bake in 400 degree oven, 40-50 minutes.

Crumb Topping

One half cup butter, ½ cup brown sugar, 1 cup flour.

Cream butter and brown sugar together. Cut in flour.

FROM Foreign LANDS

Translated and Edited by Erika Barth

Bee Venom Destroys Blood Cells.

BEE VENOM was found to destroy (hemolyze) red blood cells in laboratory tests conducted by H. Gastpar, J. Hof, and W. Seitz of the Medical Polyclinic, University of Munich, Germany. Human serum (liquid portion of blood) prevents this action. The scientists tested the serums of 80 patients with various diseases to determine how such serums affected this action of highly purified dried bee venom.

Normal serum, diluted one to 32, still inhibits this effect. In acute liver disease (hepatitis), the serum is less effective (1 to 2; 1 to 8). In chronic liver diseases, the serum reacts normally. In a case of lipoid nephrosis, the serum still retained its power of inhibitation at a dilution of one to 256.

Klin. wschr. 33:183 (Feb. 15) 1955.

Bee Poisoning

AFTER WORLD WAR II, when sugar was scarce in Belgium, many beekeepers fed their bees industrial glucose. This industrial glucose often contained impurities, especially arsenic. As a result many beekeepers who fed it lost their colonies.

La Belgique Apicole.

Famous People Have Famous Daughters

"CHARLIE CHAPLIN relates, quite impressively, the following story about his five-year-old daughter, Sitting in the window of his residence at Vevey, he saw her picking flowers near a swarm of bees. 'Look out, my dear!' shouts the father, 'you will get stung.' 'No, No!' answered the child, 'they are taking me for a flower'."

British Bee Journal. March 3, 1955.

Honey-Milk Food.

A PREPARATION composed of milk and honey, and sold under the trade name of "Ho-Mi", is being advertised in German medical journals. A sample advertisement is shown here. The preparation is recommended for lack of appetite; neck, heart, stomach, liver, and intestinal diseases; anemia, diarrhea, and as a tonic for children and adults.

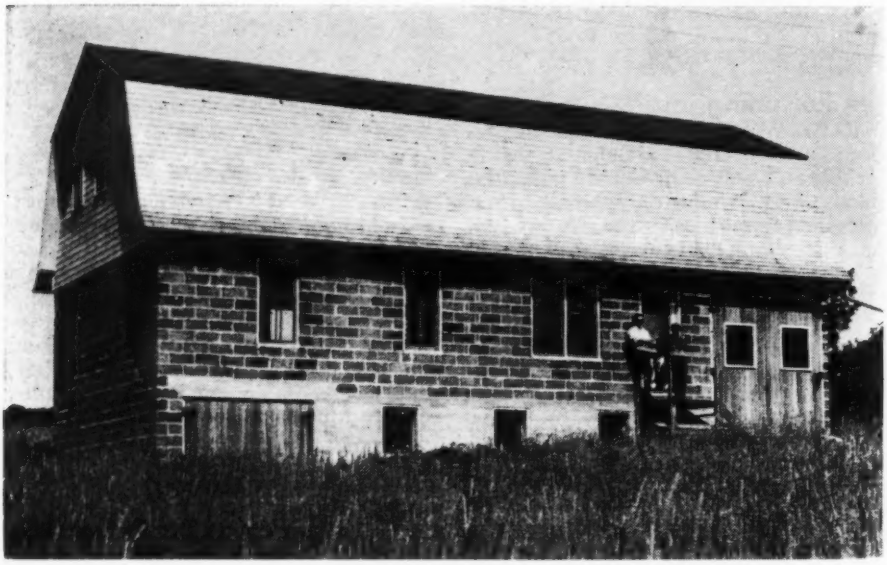
"Ho-Mi" contains 25 per cent honey, 65 per cent milk, and 10 per cent glucose. It is available from apothecary shops and diet stores in Germany. We are unaware of any outlets for "Ho-Mi" in the United States at this time. Interested Gleanings readers can probably get more information from stores selling health and diet foods.

B & Z LIBRARY

XUM

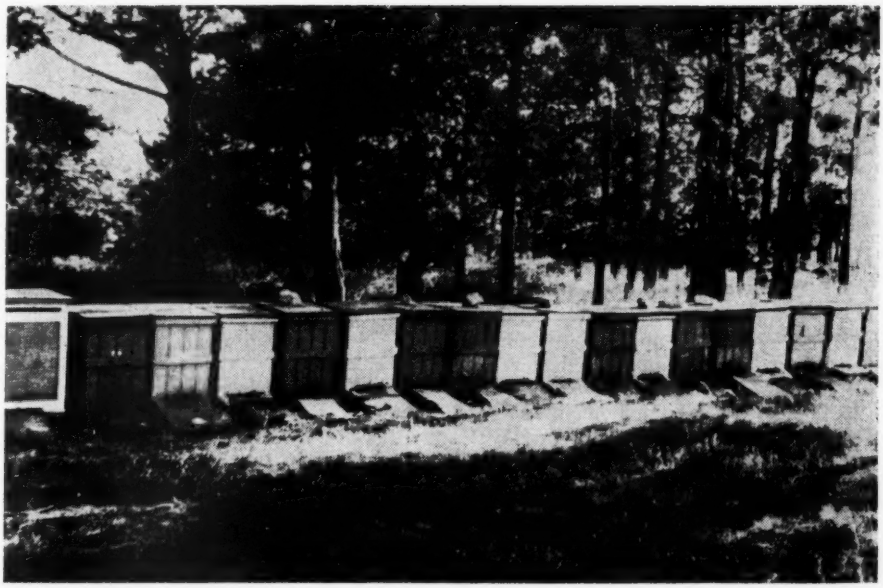
News

Celery Pollination. Here is bad news for beekeepers. Honeybees were found to be ineffective pollinators of celery so flies were substituted. Carl English, experimentalist in plant breeding at Cornell University, encloses two or three flies in each caged celery plant where they feed on nectar and pollinate the blossom. The houseflies provide an economical way of pollinating small celery flowers in greenhouses during the winter. From work of this kind has come the famous Emerson pascal celery.

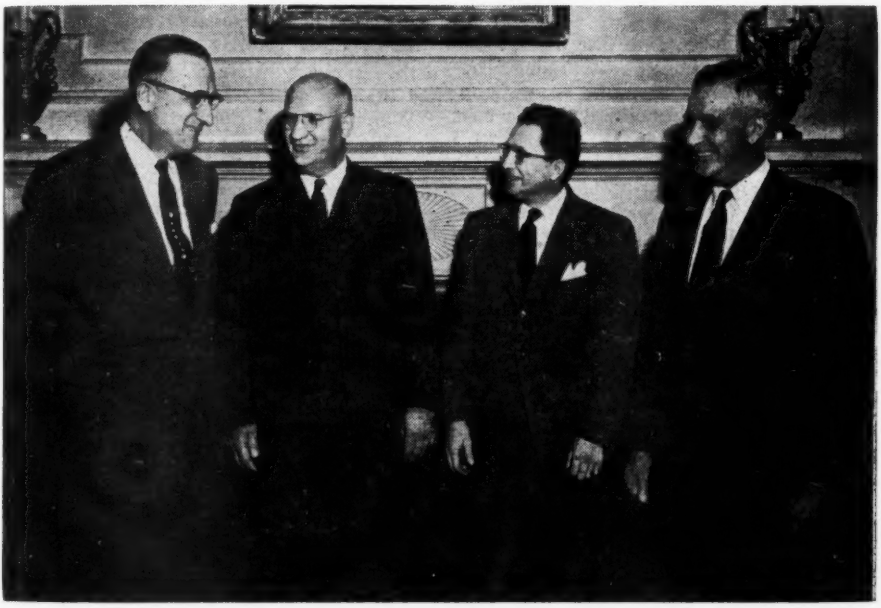


The House of Gables. Harry Gable, Romulus, New York, and a friend, sun themselves after a hard morning of extracting. Supers are brought in through the door at ground level (right), and the full cans of 60's leave by the door in the basement (left). Gravity flow takes the honey from the extractor to the settling tanks in the basement.

reel



Belgian Apiary. Apiary of D. Stephaan Vandeputte of Hekelgem, Belgium. Notice that the front of the hives are painted different colors to allow the bees easy identification and thereby prevent drifting.



Beekeeping is certain to be the topic of conversation as Rudolph Patzig of Bedminster, newly elected president of the New Jersey Beekeepers' Association, Franklin Peterson of Pitman, newly elected first vice president, Milton H. Stricker of Annandale, reelected secretary-treasurer, and Paul L. Holcombe of Lambertville, bee culture supervisor of the State Department of Agriculture, take time out from the annual convention of the Association held during FARMERS WEEK in Trenton.—Photo from N. J. Dept. of Agri.

XUM

Bee Facts

(A Digest of Scientific Research)

Edited by Walter Barth

Do Bees Carry Eggs?

IT IS THE general belief among some beekeepers that queenless colonies will rob eggs from queen-right colonies in order to start queen cells. We of GLEANINGS have never agreed with this idea so when an article called "Bees Carrying Eggs" appeared in BEECRAFT, we felt that it should be republished in this column. The author, Mr. R. O. B. Manley, one of England's leading and most successful beekeepers, replied to the question of whether bees carry eggs or not. His answer seems to adequately cover the subject.

"I consider it absurd to suggest that bees carry eggs from one hive to another.

"My reason is that the whole idea assumes a degree of intelligence approaching reason, which I am convinced is wholly impossible in the case of an organism such as an insect. I consider it a fact that insects act in all they do from instinct alone. Now, in the case under consideration it is supposed that when a colony of bees becomes 'hopelessly queenless' some bee speculates on the misfortune that has come upon them and reasons that there are probably fertile eggs in other hives near by and forthwith decides upon an act of pillage. A bee, having debated the matter in her mind, decides to sally out, enter the hive to be robbed, and having passed the guards at its entrance, and found a cell in which an egg is glued to the base, removes that egg and having once more negotiated the exit, carries it home and deposits it in some empty cell in which, on hatching out, the resulting grub is fed with royal jelly and reared as a queen.

"Now consider what this involves. First reason. The bee must reason that an egg is required, and must also reason that there are eggs elsewhere. It must then reason that if such an egg can be obtained and brought away without injury a queen can be raised from it. The bee must also be able, having entered the hive to be robbed, to restrain itself and exercise a great deal of self control since as we have reason to know, a bee's first and strongest instinct is to get honey, it must pass over the stored honey without being distracted from its object. All this appears to me to be altogether impossible.

"I have never said that bees carry eggs from cell to cell within their own hive; although I think it not unlikely. But that is quite a different matter from carrying eggs from one hive to another. Bees do carry eggs in the mandibles, for I have seen it done; but whether they plant eggs so carried in their cells I do not know. I think it improbable. When a hive is opened in summer it is quite a common experience to see the queen so disturbed, drop eggs about. These the workers may pick up; but I think it likely that they throw them out in the same way as they dispose of any loose rubbish they find. With caged queens, too, this may happen.

"We all know that bees at certain times will rob other colonies of honey or syrup; but I have never known pollen to be robbed. I do not say that it never is; I only know that I have never seen it done.

"Ants carry eggs because that is one of their more powerful instincts. It does not follow that it is so with bees. To argue from one order to another is unsafe, and still more unjustifiable is it to argue from human nature to the nature of insects. Moreover, I have never heard it suggested that ants, should their queen be lost, will sally out to rob other nests."

Manley, R. O. B. "Bees Carryiing Eggs". BEECRAFT - March 1955, page 33.

Live and Learn

by Propolis Pete

MAYBE THIS is another crazy idea, but I am going to try something that may solve a problem for me. If it works, maybe it will solve a problem for a lot of other people.

For some reason or other, the regular deep bodies seem to be getting heavier every year. When I first started beekeeping, I could toss them around, empty or full. I thought nothing of shifting them around as occasion demanded. Now I grunt and groan when I lift them off a four-decker, and groan and grunt when I lift them back. A hive lifter with a block and tackle would be ideal, but it would take too long to build a scaffold around every hive whenever I wanted to see what was on the bottom board.

Others in the same predicament seem to use two deep bodies as the hive proper, and then shallow supers above that. It works all right, but in many ways it is a nuisance. It isn't practical to put the top body on the bottom of the pile, and besides it is nicer and cleaner to keep brood out of your surplus supers. And then, when it comes to extracting, you have to handle twice as many frames to get the same result. When I extract, I like to see a torrent of honey come out of the extractor, not the little piddling stream that comes out when you are running through shallows. This is just another way of saying that while easier and lighter, it takes twice as long to get the same amount of honey.

I have thought of making up a hive entirely of shallows, but have not done it for a lot of reasons. For instance, while it would be a cinch to juggle the bodies around, it would take four to make a standard colony. The combs, being so small, couldn't hold much brood, and the queen would have to cover a lot more territory. If she didn't she might get claustrophobia and want out of there. And if most bees are like my bees, they would bridge the gap between the skimpy brood combs and you would have a real solid brood nest. And I do mean solid.

For all of the years that I have been poring over supply catalogs, for some reason unknown, I never have noticed that they make a deep shallow super—a three-quarter depth so to speak. Three of them just about make a standard two-story colony. My noble experiment then is to try out a colony using nothing but these deep shallows. Maybe it will work, and maybe it won't. If it don't work, then I have gained some experience and a couple more spare supers. I have bought five, and the first swarm that I get, find or hear about is going into three of them. The other two will be kept for supers.

Why a swarm, if I am anxious to test out this theory? Well, for one thing, I want to give this colony the best chance starting on foundation. I wouldn't have any drawn combs of this size to start a package on, and I don't like to start packages on foundation if I can help it. Swarms seem to delight in drawing foundation. I have seen a good swarm draw out a full deep super within a week. Also a real old daddy of a swarm will have a lot more bees than come in a single package. Last, but not least, a swarm costs nothing, and that is the best price to pay for an experiment like this. With my usual luck, probably this will be one of those non-swarming years.

SOMETIMES YOU can predict with a fair assurance what kind of a season you will have. Some years, it's a toss up, this year for instance. Spring is late. After a tough winter, with stores dwindling and old bees dying off fast, it could be that they will be so busy trying to keep the home fires burning that they won't think of wandering. On the other hand, it could be that for the very same reasons, a lot of old queens are going to fail just when they are needed the most. That might result in more swarming than usual. The bees might figure that they might just as well move, they couldn't do any worse some place else. So they will build supercedure cells, and run off with daughter when she gets flighty, and forget to come back.

One thing is not hard to predict

(Continued on page 314)

XUM

Let's talk about honey plants

HARVEY B. LOVELL, University of Louisville

HONEY LOCUST (**Gleditsia triacanthos**) is one of several plants that have honey in their name. In this case the name comes from the honeylike odor of the flowers. Bees usually visit this tree in great numbers for nectar but it is rarely common enough to produce a surplus. It is listed as a honey plant in many of the southern states, but I have been unable to find a description of the honey. In many areas it is called a thorn tree because of the very large branched thorns, and since it is the only tree native to eastern United States with branched thorns, it is easy to identify. It sometimes reaches a height of 140 feet with a trunk five feet in diameter. It produces large numbers of heavy pods up to a foot in length. Anyone having obtained a surplus from honey locust, please write me about it.

Honey locust

Jackass Clover (**Wislizenia californica**) is a fairly important honey plant in parts of California. George J. Brown writes that in 1954, "The flow was very much below normal, but some of our bees stored about 60 pounds of extracting honey and the best comb honey colonies finished one super of comb. I am sending you a sample which is not as good as from a heavy flow." The honey is white with a pleasant flavor. This plant is also known as alkali weed because of its ability to grow in alkaline soils.

Rhode Island. The first report of pollen in New England comes from C. W. Browne of Ashaway, whose bees were bringing it in on March 11. "Yesterday, March 11, I observed my colonies bringing in pollen in large amounts. Their pollen baskets were packed full of bright yellow pollen, and the hair on their abdomens was yellow too."

New York. Everett D. McIlver of Wappinger's Falls, seven miles south of Poughkeepsie, also obtained his first pollen on the same date. He adds, "The last two years the first pollen came in on March 14 and March 21, so this season is a little earlier."

Virginia. In spite of cool, damp weather including thunderstorms, Richard R. Mahaffey of Boissevain in the western end of the state obtained his first pollen of the year from white maple and dandelion on March 1. He adds, "Snow stayed on around here from January 10 to February 23 and we thought it would never leave. This is a pretty cold country around here in Tazewell County and slow to warm up because we have high mountains all around."

Ohio. Mr. James M. Layne, Jr., of Pedro in south central Ohio, writes that "I have read all of your writings in Gleanings in Bee Culture and I enjoy each one of them very much. I first noticed my bees bringing in pollen on February 27. The maple trees are blooming here and the bees are certainly taking advantage of this lovely mild weather. Some of my bees have so much pollen on their legs that they have to rest before they go into the hive."

Indiana. Gilbert Perigo sends me an interesting plant which he finds abundant in Morgan County near Moores-

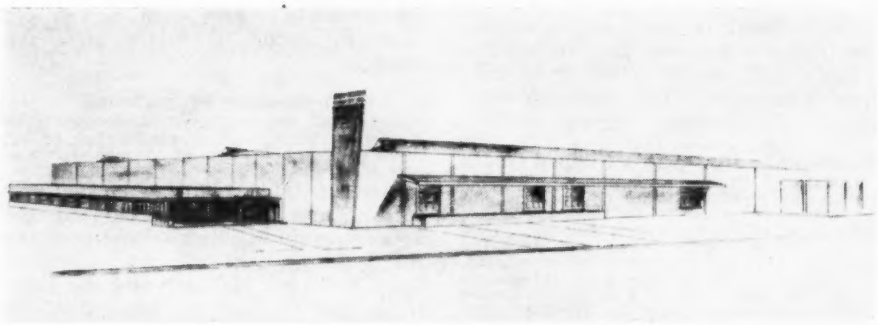
ville. There is an extensive acreage of this plant within reach of two of his apiaries. It turned out to be dead nettle or henbit, the plant which I described in the March Gleanings.

Mr. Perigo adds, "The small lavendar blossoms are worked by bees in any kind of weather suitable for flying. They seem to prefer it to either dandelion or clover. I have never gotten a surplus from this source, but it is one of the most valuable and reliable sources of nectar to stimulate early brood rearing that I have encountered. In fertile soil it will reach a height of 12 inches or so."

New Hampshire. Professor J. R. Hepler, the extension horticulturist at the state University writes, "There is something peculiar about honey yields. I have a friend who keeps bees in the country where one of the masters of beekeeping lived, one of those old time giants of the 60's and 70's who had apiaries of 500 colonies in one yard. My friend today keeps 30 to 40 at most. There must have been some change in the flora or the crops we grew to account for this. It would seem that our bees are better than the bees they had in those days. We know more about handling them. My experience is that bees cannot make honey unless there is a heavy flow of nectar."

March freeze. Bees as well as plants have been hard hit by the near zero temperatures that hit the southeastern states in late March during the height of the peach blossoms. Many trees and shrubs that were in full bloom have turned brown and have been frozen back to last year's wood. The peach crop appears to be a total loss even as far south as Georgia. Cherries, plums, apricots, and perhaps other fruit trees have suffered severely. Bee hives with active brood rearing consume a lot of stores and many colonies with reduced stores may face starvation or at least a great reduction of their brood rearing. This will delay the spring build-up unless extra spring feeding is given.

Superior Honey Company's New Plant



THIS IS the artist's sketch of the new plant to be located at 10920 South Garfield Street, South Gate, California. Ground breaking ceremonies took place the last of February and it is expected that the building will be completed in early July.

Construction of the main floor will be tilt-up concrete. The floor space of office and plant will be over 400,000 square feet. There will be a separate building for wax rendering and refining, using the latest ideas and methods in this field.

The Superior Honey Company was established in 1900 and has plants in Ogden, Utah; Phoenix, Arizona; Denver, Colorado; I d a h o Falls, Idaho; and Madera, California.

XUM

Asked & Answered

Time for Putting on Comb Honey Supers

Question: What is the proper time for putting on comb honey supers?—Ohio

Answer: Comb honey supers should be put on at the very beginning of the main honey flow or a few days before. Since in your locality the main honey flow is from clover you can judge the time for putting on the comb honey supers by the appearance of the first white clover blossoms. The honey flow usually begins in earnest about 10 days after the appearance of the first white clover blossoms. Any time within these 10 days is the proper time for putting on the comb honey supers, provided the colonies are strong. For extracted honey the supers should be put on earlier if the colonies are strong.

Production of Chunk Honey

Question: How many frames of foundation should I use in a 10-frame super when producing "sectionless" comb honey? Also should I use thin super foundation or extra-thin in these frames?—Iowa.

Answer: You will secure straighter combs by using the full set of ten frames in the ten-frame supers. If you want the combs thicker, you may be able to secure fairly straight combs by using nine frames, thus saving a sheet of foundation for each super. However, great care will be necessary in spacing the frames when only nine are used in a super since the combs are to be built from foundation. Thin super foundation is best for this purpose.

Handling Swarms with a Clipped Queen

Question: I've never clipped a queen, but in doing so—does that end my swarming worries? Also, when bees leave the hive in an effort to swarm, and the queen being clipped cannot leave, and later the bees go back to the hive whence they started—do I let nature take its course from this point, or do I have something to do in connection with the already started queen cells in said hive, in as much as I do not intend to make any increase? —Michigan.

Answer: Clipping a queen's wing does not necessarily end swarming worries. The best swarm control measures consist in having each colony headed with a queen that is reasonably young and providing each colony with ample comb space for the storage of incoming nectar, a little in advance of the time the space is actually needed. This means putting on supers quite early to avoid congestion in the hives. In case a swarm with a clipped queen issues the queen not being able to fly is usually found near the entrance of the hive. If nature takes her course, the swarm will return to the hive and so will the queen if the alighting board is touching the ground so that the queen may gain entrance to the hive. If the hive happens to be up on a stand, some distance off the ground, the queen cannot get into the hive and consequently she is likely to be lost. If this should happen, a young virgin queen will emerge from one of the cells in the parent hive and become the mother of the colony. If you do not desire increase in your apiary and if you are on hand to handle the swarm properly when it issues, it is desirable, when the old queen is retained, to destroy all the queen cells in the brood chamber of the hive, put the old queen back, then raise most of the brood into a super above the queen excluder. This raising of brood tends to relieve congestion in the brood chamber below. If it is desirable to do away with the old queen, she should be killed and one queen cell should be left in the brood chamber. In due time a young virgin queen should emerge from the cell and mate in about five days after she emerges.

Appearance of Sacbrood

Question: Do cells of sacbrood have sunken or perforated cappings, thus giving them the appearance of American foulbrood?—Tenn.

Answer: The cappings are often perforated and resemble somewhat the appearance of American foulbrood; but the appearance of the dead larvae is quite different. In sacbrood the larva turns dark in color and sinks down in the middle forming a sort of boat-shaped mass with the ends projecting upward instead of slumping down in a shapeless mass as in American foulbrood. The dead larvae in sacbrood can easily be removed instead of adhering to the cell wall as in American foulbrood, and on puncturing the skin of the dead larvae of a certain stage the contents are liquid, while in American foulbrood the entire mass flattens out on the lower cell wall.

Honey price support program announced for 1955

THE U. S. Department of Agriculture announced April 8th that honey will be supported during the 1955 marketing season, which starts April 1, at a national average price of 9.9 cents per pound. This is 70 per cent of the current parity price adjusted to the 60-pound container level, however, it represents a three tenths of a cent drop from last year's average price.

Price support for honey within a range of 60 to 90 per cent of parity is mandatory under the Agricultural Act of 1949, as amended.

This program is substantially the same as the one in effect last year, and is administered by the Sugar Division of Commodity Stabilization Service under supervision of Commodity Credit Corporation. Prices for honey will be supported through farm-storage loans and by offer of the Commodity Credit Corporation to purchase honey delivered by producers under purchase agreements on U. S. Grade C or better extracted honey which is stored in 60-pound or larger containers in approved storage and is not objectionable in flavor. Beekeepers or cooperative associations of beekeepers can apply for loans or purchase agreements directly to the Agricultural Stabilization and Conservation county offices.

Detailed information regarding the foregoing programs, including support prices by classes of honey and areas of production, may be obtained at county offices or from the Commodity Stabilization Service offices listed below:

Chicago 5, Illinois, 623 South Wabash Avenue: Connecticut, Delaware, Illinois, Indiana, Iowa, Kentucky, Maine, Maryland, Massachusetts, Michigan, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Vermont, West Virginia.

Dallas 26, Texas, 3306 Main Street: Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, New Mexico, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia.

Kansas City 6, Missouri, Federal Office Building, 911 Walnut Street: Colorado, Kansas, Missouri, Nebraska, Wyoming.

Minneapolis 8, Minnesota, 1006 West Lake Street: Minnesota, Montana, North Dakota, South Dakota, Wisconsin.

Portland 5, Oregon, Eastern Building, 515 Southwest Tenth Avenue: Arizona, California, Idaho, Nevada, Oregon, Utah, Washington.

Support Prices

Loans will be made, and honey delivered under purchase agreements will be purchased at the support prices set forth below:

For All States East of Montana, Wyoming, Colorado and New Mexico

	Rate (cents per pound)
1. White and lighter table honey	11.0
2. Extra Light Amber table honey	10.5
3. Nontable and other table honey	9.0

For States of Montana, Wyoming, Colorado, New Mexico and States West Thereof

	Rate (cents per pound)
1. White and lighter table honey	10.1
2. Extra Light Amber table honey	9.6
3. Nontable and other table honey	8.1

Loans will be made at the applicable support price established for the State in which the honey is stored.

(a) "Table honey" means honey having the predominant flavor of not more than two floral sources, and preferably one, which can be readily marketed for table use in all parts of the country. Such honey includes those with the predominant flavors of Alfalfa, Brazil Brush, Catsclaw, Clover, Cotton, Fireweed, Gallberry, Huajillo, Lima Bean, Mesquite, Orange, Raspberry, Sage, Sourwood, Star Thistle, Sweetclover, Tupelo, Vetch, Western Wild Buckwheat, and similar predominantly mild-flavored honeys, or predominantly mild-flavored blends of honey, as determined by the Director, Sugar Division, CSS.

(b) "Nontable honey", means honey having a predominant flavor of limited national acceptability for table use but considered to be suitable for table use in most areas in which it is produced. Such honeys include those with the predominant flavors of Aster, Buckwheat (except Western Wild Buckwheat), Goldenrod, Heartsease (Smartweed), Horsemint, Mangrove-Palmetto, Manzanita, Mint, Partridge Pea, Rattan Vine, Salt Cedar (Tamarix gallica), Spanish Needle, Ti-ti, Toyon (Christmas Berry), Tulip-Poplar, and similarly-flavored honeys, or blends of such honeys, as determined by the Director, Sugar Division, CSS.

(See editorial on page 288)

XUM

Who's Who in APICULTURE

To supply a handy reference of the names and addresses of state and provincial apiary inspectors, secretaries of beekeepers' associations, extension workers in beekeeping, and other information often needed by our readers we have corrected our Who's Who in Apiculture as of April 1, 1955.

State or Province	Bees on Combs Admitted	Net Weight Law: Extracted	Net Weight Law: Comb	Inspector State or Province	Sceretary State Association
Ala.	No	Yes	Yes	C. A. North, Montgomery	F. E. Guyton, Auburn
Alta.	Permit	Yes	Yes	W. G. le Maistre, Edmonton	F. E. Boswell, Brooks
Ariz.	Cert.	Yes	Yes	Miles D. Benson, Phoenix	Clarence L. Benson, Phoenix
Ark.	Cert.	Yes	Yes	G. W. Freeman, Little Rock	Rea H. Davis, Little Rock
B. C.		Yes	Yes	John Corner, Vernon	John Corner, Vernon
Calif.	Cert.	Yes	Yes	Elbert R. Jaycox, Sacramento	Earl G. Barnes, Yorba Linda
Colo.	Cert.	Yes	No	Homer P. Powers, Denver	Jim Smith, Las Animas
Conn.	Cert.	Yes	Yes	W. T. Brigham, New Haven	Lois Baker, Brooklyn
Del.	Cert.	No	No	John W. Dukes, Dover	John W. Dukes, Dover
Fla.	Permit	Yes	Yes	H. S. Foster, Gainesville	F. A. Robinson, Gainesville
Ga.	Permit	Yes	Yes	T. J. Ratcliff, Tifton	C. H. Herndon, Dupont
Ida.	Permit	No	No	C. F. Feeler, Nampa	Dewey Olsen, Preston
Ills.	Cert.	Yes	Yes	Carl E. Killion, Paris	Hoyt Taylor, Pleasant Plains
Ind.	Permit	Yes	Yes	Gilbert Perigo, Indianapolis	Gilbert Perigo, Indianapolis
Iowa	Cert.	No	No	F. B. Paddock, Ames	F. B. Paddock, Ames
Kans.	Cert.	Yes	Yes	R. L. Parker, Manhattan	Will T. Roberts, Kansas City
Ky.	Permit	Yes	Yes	E. M. Miller, Frankfort	Lewis T. Osborne, Crestwood
La.	No	Yes	Yes	S. J. McCrory, Baton Rouge	S. J. McCrory, Baton Rouge
Me.	Cert.	Yes	Yes	Reginald B. Swan, Brewer	C. A. Stanhope, Bradford
Man.	Cert.	Yes	Yes	D. R. Robertson, Winnipeg	D. R. Robertson, Winnipeg
Md.	Cert.	No	No	G. J. Abrams, College Park	G. J. Abrams, College Park
Mass.	No	Yes	Yes	Milo Bacon, Boston	W. R. Parker, W. Boylston
Mich.	No	Yes	Yes	Don P. Barrett Lansing	Mrs. M. Seidelman, Ionia
Minn.	Cert.	Yes	Yes	C. D. Floyd, St. Paul	Robert Roy, Tintah
Miss.	Cert.	Yes	Yes	Homer Tate, State College	C. A. Wilson, State College
Mo.	No. Reg.	Yes	Yes	J. Anderson, Jefferson City	Stirling Kyd, Columbia
Mont.	Permit	Yes	Yes	Lloyd N. Graham, Bozeman	Mrs. O. R. Burdette, Laurel
Nebr.		Yes	Yes	C. J. Walstrom, Lincoln	Mrs. Chas. Bellin, O'Neill
Nev.	No	Yes	Yes	George G. Schweis, Reno	No association
N. B.	Cert.	Yes	Yes	Adam J. Wilson, Fredericton	Reade Ferris, Fredericton
N. H.	Cert.	Yes	Yes	James G. Conklin, Durham	Herman Sander, Manchester
N. J.	Cert.	Yes	Yes	Paul J. Holcombe, Trenton	M. H. Stricker, Annandale
N. M.	Cert.	Yes	Yes	J. R. Poe, State College	Ersel C. Edwards, Los Lunas
N. Y.	Cert.	Yes	No	A. C. Gould, Albany	Mrs. E. T. Cary, Syracuse
N. C.	Permit	Yes	Yes	J. F. Greene, Raleigh	Mrs. A. L. McLean, Raleigh
N. D.	Permit	Yes	No	J. A. Callenbach, Fargo	Inactive
N. S.	No	Yes	Yes	E. A. Karmo, Truro	Philip Bishop, Sackville
Ohio	Cert.	Yes	Yes	S. E. Bailey, Columbus	H. J. Vandenberg, Lagrange
Okla.	Cert.	Yes	Yes	C. A. Bower, Oklahoma City	Glenn Gibson, Minco
Ont.	Permit	Yes	Yes	P. W. Burke, Guelph	G. F. Townsend, Guelph
Ore.	Cert.	Yes	Yes	A. Burr Black, Salem	Oliver W. Petty, Albany
Pa.	Cert.	Yes	Yes	Geo. Sleesman, Harrisburg	A. R. Dean, Pittsburg
Que.	No	Yes	Yes	J. R. Methot, Quebec City	J. Prud'homme, St. Isidore
R. I.	Cert.	Yes	Yes	Howard A. Pike, Conimicut	Mrs. A. Laporte, Woonsocket
Sask.	No	Yes	No	J. H. Arnott, Regina	R. M. Pugh, Tisdale
S. C.	Cert.	Yes	No	W. H. Purser, Clemson	J. F. Switzer, Roebuck
S. D.	Cert.	Yes	Yes	Clarence Beck, Sioux Falls	Warren Miller, Pierre
Tenn.	Cert.	Yes	Yes	L. H. Little, Nashville	L. H. Little, Shelbyville
Texas	Cert.	Yes	Yes	C. J. Burgin, College Station	C. J. Burgin, College Station
Utah	Cert.	Yes	Yes	J. I. Curtis, Salt Lake City	J. I. Curtis, Salt Lake City
Vt.	Cert.	Yes	Yes	R. M. Mead, White River Jct.	C. N. Wood, So. Woodstock
Va.	Permit	Yes	Yes	H. Weatherford, Vernon Hill	H. Weatherford, Vernon Hill
Wash.	Quar.	Yes	Yes	Temporarily vacant	Mrs. C. VanWechel, Naches
W. Va.	Cert.	Yes	Yes	None	No association
Wisc.	Permit	Yes	Yes	John F. Long, Madison	A. R. Vosburg, Ft. Atkinson
Wyo.	Permit	Yes	No	C. A. Beavers, Powell	R. F. Schaefer, Riverton

United States—Division of Bee Culture and Biological Control, James I. Hambleton in Charge, Beltsville, Md.; Section of Bee Culture Research, W. J. Nolan, Beltsville, Md.; Southern States Field Laboratory, W. J. Whitcomb, Baton Rouge, La.; Inter-Mountain Laboratory, A. P. Sturtevant, Laramie, Wyo.; Bee Culture Field Station, C. L. Farrar, Madison, Wisc.; Beekeeping and Insect Pathology Lab., University of Arizona, Frank E.

Todd, Tucson, Arizona; Research Centers: Logan, Utah, George E. Bohart; College Station, Texas, A. H. Alex.

U. S. Marketing Aid: Commodity Stabilization Service, Sugar Division, U. S. Dept. of Agriculture—Harold J. Clay, Washington 25, D. C.

Dominion of Canada—Investigation and Demonstration of Bee Culture: Cecil A. Jamieson, Dominion Apiarist, Experimental Farm, Ottawa, Canada; Bee Breeding Station, Pelee Island, Ontario, Prof. G. F. Townsend in charge.

Apiary Inspectors of America—President, Prof. F. B. Paddock, Ames, Iowa; Secretary, C. D. Floyd, St. Paul, Minn.; Regional Vice Presidents: Eastern, Philemon J. Hewitt, Jr., Litchfield, Conn.; Southern, Homer Tate, State College, Miss.; Northern, Don Barrett, Lansing, Mich.; Western, Elbert Jaycox, Sacramento, Calif.

American Beekeeping Federation—President, Henry Schaefer, Osseo, Wisc.; Vice President, S. Joaquin Watkins, Fruita, Colo.; Secretary-Treasurer, Robert Banker, Cannon Falls, Minn.

Ladies' Auxiliary of American Beekeeping Federation—President, Mrs. Henry Schaefer, Osseo, Wisconsin; Vice President, Mrs. Newman Lyle, Sheldon, Iowa; Secretary-Treasurer, Mrs. Robert Wahlstrom, Ames, Iowa.

Bee Industries' Association—President, Howard Dankemeyer, Marshfield, Wisconsin; Secretary, R. H. Dadant, Hamilton, Ills.; Treasurer, Baxter Woodman, Grand Rapids, Mich.

Southern States Beekeepers' Federation—President, A. D. Hiett, Martinsburg, W. Va.; Vice President, Dr. E. K. Patton, Ben Hill, Ga.; Secretary-Treasurer, W. A. Stephen, Raleigh, N. C.

American Bee Breeders' Association—President, W. W. Wicht, Hattiesburg, Miss.; Vice President, E. L. Garon, Donaldsonville, La.; Secretary, Garnett Puett, Jr.,Hahira, Ga.

American Honey Institute—Director, Mrs. Harriett M. Grace, Madison, Wisc.; R. F. Remer, Sioux City, Chairman, Board of Directors.

National Honey Packers and Dealers' Association—President, T. E. Burleson, Waxahachie, Texas; Vice President, R. F. Remer, Sioux City, Iowa; Secretary, Roland C. Stone, Los Angeles, Calif.; Treasurer, Ken Bradshaw, Wendell, Idaho.

Honey Industry Council of America—Chairman, R. B. Willson, New York City; Vice President, R. B. Dadant, Hamilton, Ills.; Sec.-Treas., L. H. Little, Shelbyville, Tenn.

State or Province	Beekeeping Taught in Agri. Col.	Annual Short Course	Professor in Charge of Beekeeping Course	Extension Work Carried on	Extension Specialists in Beekeeping
Ala.	Yes	No	F. E. Guyton, Auburn	Some	W. A. Ruffin, Auburn
Alta.	No	No		Yes	W. G. leMaistre, Edmonton
Ariz.	Yes	No	Frank E. Todd, Tucson	No	
B. C.	Yes	Yes	A. Des Champs, Vancouver	Yes	V. E. Thorgeirson, New West
Calif.	Yes		H. H. Laidlaw, J. E. Eckert	Yes	J. E. Eckert, Davis
Colo.	Yes		J. O. Moffett, Ft. Collins	No	
Conn.	Yes	No	Wm. Tunio	Yes	Wm. Tunio
Fla.	Yes	Yes	Milledge Murphy, Gainesville	Yes	J. D. Haynie, F. A. Robinson
Ga.	No	No		Yes	W. E. Neville, Athens
Ida.	Limited	No		Yes	Portman, Moscow
Ills.	Yes	Yes	V. G. Milum, Champaign	Yes	V. G. Milum, Champaign
Ind.	Yes		B. E. Montgomery, Lafayette	Limited	B. E. Montgomery, Lafayette
Iowa	Yes	Yes	Rothanbuckles - Paddock	Yes	R. Walstrom, F. Paddock
Kans.	Yes	Yes	R. L. Parker, Manhattan	No	
Ky.	Yes		Lee Townsend	No	
Me.	Yes		Charles O. Dirks, Orono	Yes	Charles O. Dirks, Orono
Man.	Yes		D. R. Robertson, Winnipeg		
Md.	Yes		G. J. Abrams, College Park	Yes	G. J. Abrams, College Park
Mass.	Yes		Frank R. Shaw, Amherst	Yes	Frank R. Shaw, Amherst
Mich.	Yes		E. C. Martin, E. Lansing	Yes	E. C. Martin, E. Lansing
Minn.	Yes	Yes	M. H. Haydak, St. Paul	Yes	M. H. Haydak, St. Paul
Miss.	Yes	No	C. A. Wilson, State College	Some	A. G. Bennett, State College
Mo.	Yes	No	Leonard Haseman, Columbia	No	
Nebr.	Yes	No	O. S. Bare, Lincoln	No	
N. B.	Yes	No	Provincial Apiarist	Yes	Provincial Apiarist
N. H.	Yes	Yes	J. R. Hepler, Durham	Some	J. R. Hepler, Durham
N. J.	Yes		R. Filmer, New Brunswick	Yes	R. Filmer, New Brunswick
N. Y.	Yes	No	E. J. Dyce, Ithaca	Yes	W. L. Coggshall, Ithaca
N. C.	Yes	Yes	W. A. Stephen, Raleigh	Yes	W. A. Stephen, Raleigh
N. D.	Yes	No	R. L. Post, Fargo	Little	W. J. Colberg, Fargo
N. S.	Yes		E. A. Karmo, Truro	Yes	E. A. Karmo, Truro
Ohio	Yes	No	W. E. Dunham, Columbus	Yes	Chas. A. Reese, Columbus
Okla.	Yes	No	G. A. Bierbedorff, Stillwater	Yes	C. F. Stiles, Stillwater
Ont.	Yes	Yes	G. F. Townsend, Guelph	Yes	G. F. Townsend, Guelph
Ore.	Yes	No	W. P. Stephen, Corvallis	Yes	W. P. Stephen, Corvallis
Pa.	Yes	Yes	E. J. Anderson, College Sta.	Yes	W. W. Clarke, College Sta.
Sask.	Yes		C. F. Patterson, Saskatoon	Yes	J. H. Arnott, Regina
S. C.	Yes		D. Dunavan, Clemson Col.	Yes	W. H. Johnson, Clemson Col.
Tenn.	Yes	Yes	B. S. Pickitt, Knoxville	No	
Texas	Yes		V. A. Little	Yes	Claud J. Burgin, College Sta.
Utah	Yes	No	G. F. Knowlton, Logan	Yes	G. F. Knowlton, Logan
Vt.	Partial	No	Mr. McCullom, Burlington	Little	Mr. McCullom, Burlington
Va.	Yes	No	J. M. Grayson, Blacksburg	Part time	John M. Amos, Blacksburg
Wash.	No	No		Some	Carl Johansen, Pullman
Wisc.	Yes		C. L. Farrar, Madison	Yes	C. L. Farrar, Madison

XUM

A Talk to Beekeepers

M. J. Deyell

Wind Storms Play Havoc

SPEAKING OF the wind, I am reminded of a passage in Holy Writ; "The wind bloweth where it listeth and thou hearest the sound thereof but can'st not tell whence it cometh nor whither it goeth."

The wind is one thing we cannot control. We should try to be ready for any emergency by having apiaries in wind protected spots.

About 12 years ago a tornado passed through one of my yards out from Medina, tipped over 40 hives and carried some of the combs out of the supers into the branches of trees. That was a sorry sight. It took me two or three hours to get the hives back on their stands and, strange as it may seem, I visited this yard later on that day and found the bees carrying in nectar and pollen as though nothing had happened.

About eight years ago a tornado came very close to another apiary, leveled two big barns, one of which stood less than 100 yards from my apiary. A part of one barn roof was carried a quarter of a mile and landed on the top of a tree. When locating this apiary I had thought of putting it near the barn but something seemed to tell me to locate it a little distance from the barn near a valley. The yard must have had a guardian angel or something, as not a single cover was blown off.

On March 22 while driving to Columbus, Ohio to attend the spring bee meeting, I met a wind storm that caused considerable damage in this area. It was necessary to pull off to the side of the road for a time while we watched branches of trees fly through the air. Before reaching Columbus we ran into a snow storm.

On returning home the following day I visited all of our apiaries as I surmised the storm might have done some damage to them. A few hives were blown over and many outer covers were lifted off and carried quite a distance. We aim to have a heavy brick on each hive to keep the cover in place. The bricks did some good but did not keep all of the covers in place.

M. J. Deyell

A few years ago when preparing outapiaries for winter we made a practice of stapling the bottom boards onto the brood chambers, also stapling the double brood chambers together and driving a 7d nail through each side of the outer cover into the hive body to keep the cover from blowing off. These nails were not driven all the way in, which made it easier to remove the nails in the spring.

This idea of stapling hive parts together appears to be worthwhile because in one instance a hive was pushed over, possibly by rabbit hunters. Even though the hive was found on its side in one unit, the bees were alive and flying normally when we visited the yard in the spring. All we had to do was to put the hive back into its former position.

Hives that are heavy with honey are not so likely to be blown over as light hives. Furthermore, colonies in heavy hives are likely to store the maximum crop of honey. This is something for beekeepers to remember.

A Further Word on Installing Packages

THERE ARE various methods of putting package bees into hives. The orthodox method consists of removing four or five combs from one side of the hive to make room for the bee shipping cages and of placing the queen in her cage between the top bars of two frames, permitting the bees to leave the

cage and move onto the combs near the queen.

Occasionally some of the bees will remain in the bee shipping cage for a time and perhaps start building burr comb. Where this method of installing packages is followed, it seems essential to check into the hives the following day to see that the bees are actually leaving the shipping cages and going onto the combs. As soon as the cages are empty, they should be removed and combs held out temporarily should be put back in the hives.

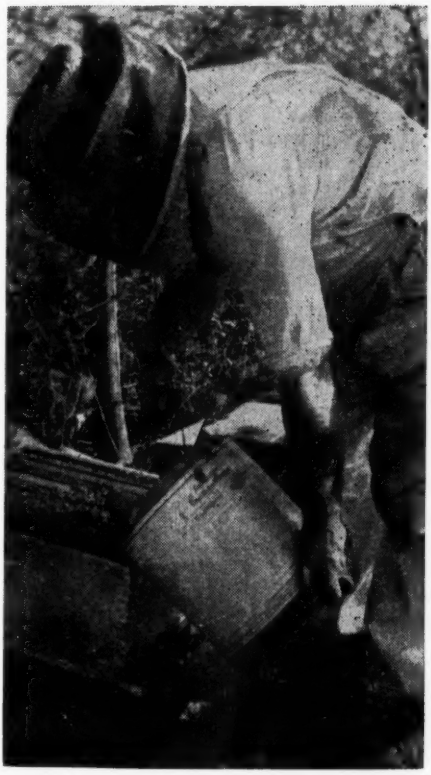
A few years ago I tried out a method that seems to have some advantages. I removed four or five combs from the side of each hive and after pouring some warm thin sugar syrup through the bee shipping cages in order to get the bees filled up with syrup, I emptied the bees from each cage, into the empty space in the side of the hive and after the bees had begun to move over onto the combs I placed the combs that were removed, back into the hive. I also released each queen, after submerging the queen cage in warm water to wet the wings of the queen so that she could not fly away.

I checked those hives of bees the following day and found some of the queens laying 20 hours after they had been put into the hives. The main advantage with this method is that the queens get into action sooner than they would if they had to be released from cages by the bees. Every day gained in egg laying counts.

It seems essential that packages be installed rather late in the evening if possible, so that the bees may get settled down during the night. If they are put into hives during a warm day, there may be some drifting from one hive to another. Hives should be at least six or eight feet apart.

A Handy Way to Feed Bees

This spring I found some of my colonies rather light in weight. It was impossible to drive from the road into the yards due to heavy rains. I bought some granulated sugar in 10-pound paper bags. This makes a convenient unit for carrying from the road into the apiary. It is a simple matter to feed colonies that feel somewhat light. I pour about three pounds of sugar onto the inner cover, around the hole in the middle of the cover. I try not to let the sugar go down through the hole because some of it may get into the combs containing unsealed brood. This might interfere with the development of larvae.



A handy way to feed, using a division-board feeder which holds about five pounds of syrup. Some beekeepers leave these feeders in the hives throughout the year. This shows Leroy C. Keet, Watertown, N. Y. feeding his bees.

My experience has been that bees take this sugar quite readily if they need it. If they do not need it, they do not take it. We cannot fool the bees.

The main reason that I like this feeding of granulated sugar is that it gets away from the labor and muss of making sugar syrup and feeding it. Furthermore, it does not cause any robbing nor does it get the bees stirred up. In my opinion, however, it is preferable to feed thick sugar syrup if the bees are very short on food. I am of the opinion that bees may waste more en-

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XUM

Just News

The **Annual Short Course for Beekeepers** will be presented by Iowa State College on May 10 and 11. This is a service of the College for beekeepers and the honey-producing industry of the state of Iowa. Anyone interested in bees for any reason whatsoever, will find this course of value to them. The program for the first day deals primarily with management and marketing problems. The second day is concerned primarily with bee diseases. A demonstration on the first day will feature the research program of Iowa State College. A demonstration on the second day will feature laboratory diagnosis of bee diseases. A special session of the Iowa Beekeepers' Association will be held on Tuesday evening, May 10.—F. B. Paddock, Exten. Apiarist.

May Meeting of the **New Jersey Beekeepers' Association** on May 21, 1955, at the Log Cabin, Experiment Station, New Brunswick, N. J.

9:30 Get Acquainted Period
10:00 Bee Movie
10:30 Important Announcement
10:45 Frame Wiring and Foundation Embedding Demonstration
11:15 Installation of Package in Experiment Station Apiary. (This colony will again be checked at the July meeting.)
12.00 Lunch
1:30 Speaker of the Day to be Announced
2:00 Forum on Swarm Control
2:30 Visit to the Experiment Station Bee Yard

—Milton Stricker, Sec.

The **Regular Short Course in Beekeeping** will be given the week of August 22 to 26 at Penn State University. It will consist of a complete series of lectures each morning and demonstrations each afternoon. Edwin J. Anderson, W. W. Clarke and George Rea will be the instructors. The number who may attend this course is not limited. The cost is $7.50 for residents of Pennsylvania and $12.50 for those out of state. Write to D. R. McClay, 203 Dairy Bldg., State College, Pa. More details will appear in later issues.

The **Suffolk County Farm Bureau Bee Club** will meet Sunday, May 22 at 2:30 p.m. at the apiary of Mr. John Wernikowski, Main Road, Aquebogue. There will be a package bee demonstration. Another meeting will be held in June at the apiary of President H. O. Boettcher, 232 Grand Central Avenue, Amityville, Long Island at 2:00 p.m. Summer management will be discussed and several colonies will be examined. —H. D. Wells, Associate County Agricultural Agent.

The **Southern Tier Beekeepers' Association** will hold its next meeting at 8 p.m., Tuesday, May 10th, at the Reynolds Radio and Appliance salesroom, 25-27 Sturges Street, Binghamton, N. Y. Mr. A. C. Gould, Chief Apiary Inspector, will be the guest speaker. A light lunch will be served. —H. B. Webb, secretary.

The **Westchester County Beekeepers' Association** will hold its next regular meeting at 2:30 p.m. sharp on Sunday May 15th at the Odd Fellows Hall, 20 Lockwood Ave., New Rochelle, N. Y. A film pertaining to bees will be shown and a demonstration will be held on installing package bees. An invitation is extended to all beekeepers and their friends. A pleasant afternoon is in store for all those who attend. Refreshments will be served.—Mrs. Alfred Roth, Publicity.

The **Middlesex County Beekeepers' Association (Mass.)** will hold its first 1955 outdoor meeting at the home of Mrs. S. S. Fitzgerald, 62 South Avenue, Weston, Mass., on June 4th. All beekeepers in the area are welcome to attend, and bring their picnic basket for the evening meal. The Association will furnish coffee.

We are pleased to announce that the Association was awarded the Silver Medal and a Special Prize for their exhibit at the Flower Show held in Boston in March. The Show was attended by over 125,000 people and the space around the beekeepers' booth was crowded much of the time.

At our April meeting we were most fortunate to have as speaker Mrs. M. Louise Yates who spoke on her beekeeping tour through 11 European countries and showed beautiful colored

slides taken on her trip. It was a real treat to hear and see about beekeeping in other countries, and the evening was enjoyed by all who attended.—L. C. Proctor, Secretary.

The **University of Minnesota Beekeepers' Short Course** will be given May 11 to 13. Problems concerning the production and marketing of honey, control of bee and brood diseases, and pollination will be ably discussed by such authorities as M. H. Haydak, G. H. Cale, F. G. Holdaway, C. D. Floyd, and T. A. Gochnauer. A cordial invitation to all.

The **Ark Valley Beekeepers' Association** will hold the next regular meeting on May 15, starting at 1:00 p.m., at the home of The Webb Apiaries, Route 4, Winfield, Kansas (located 9 miles east of Winfield on U. S. 160 & K-15 highways, then two miles north). The program will include a guest speaker and, for the out-door portion, a demonstration of proper hive inspection plus the installation of a package of bees. Refreshments of sandwiches and coffee are to be served at the close of the program. — Mrs. Emory R. Webb, Sec.

The annual meeting of the **Michigan Beekeepers' Association** will take place on Friday, July 15, at the Ionia Free Fair Grounds, beginning at 10 a.m.

In addition to talks of interest to beginners and commercial beekeepers there will be a shooting demonstration by Sgt. Coykendall of the State Police; a demonstration of mechanical hive-lifters by Walter Kelley of Kentucky; choosing of the 1955 honey queen and granting of honorary life-memberships in the Michigan Beekeepers' Association.

A pot-luck lunch and supper will be held on the grounds and coffee and ice cream will be served by the Association. All who keep or are interested in beekeeping are welcome. — E. C. Martin, Program Chairman.

A **Queen-Rearing Short Course** will be offered at Penn State University, State College, Pa., **June 20 to 22.** The cost of the course is $5.50 for residents of Pennsylvania and $10.50 for beekeepers outside of the state. The course will be limited to 20 students, due to the nature of the demonstrations. To register, write to D. R. McClay, 203 Dairy Bldg., State College, Pa.

The three-day course will consist of lectures in the morning by E. J. Anderson and W. W. Clarke, and work in the bee yards each afternoon. Each student will be given an opportunity to graft larvae. One-half day will be spent visiting the apiary of J. B. Hollopeter, Rockton, Pa., who has spent most of his life as a queen breeder.

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Dr. A. Z. Abushady Dies

Dr. A. Z. Abushady

Ahmed Zaky Abushady, M. D., passed on suddenly April 12. Dr Abushady had the distinction of being poet, philosopher, beemaster, and humorist.

In 1919 he founded the Apis Club, an international federation of beekeepers. He also founded the Bee World, a monthly journal of international scope, published in London, England. Later he moved to Alexandria, Egypt, and founded the Bee Kingdom League, also its publication, "The Bee Kingdom."

Dr. Abushady did much to standardize beekeeping equipment internationally. He was also interested in the improvement of races of bees and developed the Alpine Carniolan strain.

While in Egypt he became vice-dean of the faculty of medicine and professor of bacteriology in Farouk University, Alexandria.

Later he moved to New York City to become Manager of International Business Associates during which time he contributed some articles to Gleanings, also for ABC & XYZ of Bee Culture.

XUM

A Method of Artificial Swarming

LEMAN W. COOPER, Pennsboro, W. Va.

LAST SPRING, about April 10, I had several colonies of bees that were very strong and preparing to swarm. Two of the colonies were especially strong and contained ripe queen cells. The honey flow being approximately 60 days away I knew that something must be done to prevent them from swarming.

I had ordered a queen, thinking that I had a queenless colony but upon receiving the ordered queen I found a virgin had begun to lay, leaving me with a good queen on my hands. I was at a loss as to what to do with her.

I had often thought I would like to try out an idea of my own, to artificially swarm bees. Being an adventurous soul with nothing much to lose, I did.

I had lost two colonies of bees because of cold weather. The combs contained plenty of honey and pollen and knowing they were free from disease, I chose one of these hives for my experiment. Examining my apiary I chose the colonies that were strongest, taking care not to bother the hives with ripe queen cells. I took a frame of capped-over brood from three different hives replacing the brood with frames of honey and pollen. Now I have three frames of capped-over brood and seven frames of honey and pollen to begin my new colony. Naturally I placed the three frames of brood in the center of the empty hive. I am now ready for the bees and my extra queen. The time of day is important. I performed the experiment at 12:00 noon when the bees were working hard.

I placed the queen between the frames the same as I would to introduce her to a normal queenless colony. Choosing my strongest colony containing ripe queen cells, I destroyed all queen cells, and moved it to a new location approximately 30 feet away being sure to mark the exact location that had just been vacated. I then placed my hive containing three frames of brood and seven frames of honey and pollen and queen in the exact spot vacated by the aforesaid strong colony. All of the field bees came back to their old location and entered into the new hive, making it their home. By evening I had a real colony of bees. The bees released the queen in normal time. She began laying and in six weeks they were as strong as my other colonies. They made 40 pounds of surplus honey which is a good average in my community.

This was such a success that I ordered another queen for the other hive that I had lost and fixed it up in the same way and it made surplus honey also.

Do not think I am recommending this too highly for I have used it only twice. However, it has been very successful in preventing swarming and I also increased my apiary in this way.

Pointing out a few important facts pertaining to this experiment:

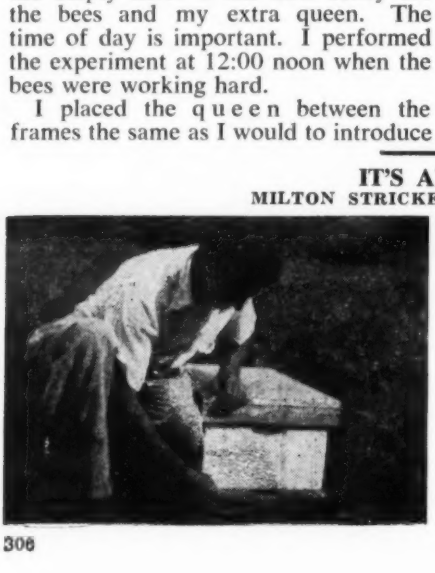
No. 1, Be sure the colony from which you choose your bees is very strong, overflowing with bees;

No. 2, Do not remove any brood from the hive that will furnish the bees for your experiment.

I might add that the colonies that furnished the bees for the experiments made plenty of surplus honey.

IT'S AN IDEA

MILTON STRICKER, Annandale, N. J.



MR. GEORGE SMITH of Allentown, New Jersey, claims this mouse guard has been used by him for over 40 years. It's a simple wooden block five-eighths of an inch thick and just the length of the hive. Its width is about three and one-half inches, which can be shoved into the hive far enough so that skunks cannot remove it and nailing it is unnecessary. A small notch is cut in the center to allow an entrance for the bees.

American Honey Institute News Notes

HARRIETT M. GRACE, Director
Commercial State Bank Building, Madison 3, Wisconsin

The Art of Display

WITH THE scent of spring in the air we turn to thoughts of honey merchandising. And that brings to mind the art of display.

What is "good display"? How can one, with a thousand other details on his mind, become proficient enough at good displays to make it sell honey for him?

We'd like to offer a few pointers for you to keep in mind this spring when planning your displays at summer fairs, in supermarkets, at your own retail booths and market places. These points are basic common sense in making displays effective, but they are easy to overlook if you're in a hurry to get the display set up.

1. **All point-of-sale displays must perform a sales function**—that of moving merchandise out of premium display space, especially in self-service markets.

Your honey display must be good enough to turn over large amounts of honey units. This means a well-thought-out display that has been planned carefully and down to the last detail. Professional help from artists is not needless expense; on the contrary, such help often pays for itself many times over.

Of course, everyone who is "in the know" and "plays all the angles" (as the popular sayings would have it) immediately writes to his American Honey Institute each spring to get a listing of all new display materials that have been prepared for his use at **COST** to him. To take advantage of this service is simply smart business.

2. **Quality, not quantity, is the key to forceful displays.**

If you put ten sloppy, little disconnected displays with no sales message throughout one retail store, you might wonder at the negative results you get. But if you can combine all these small efforts into one single, large, well-drawn and telling display, you will attract much more attention and consequently sell much more honey.

Quality should be paramount in your thinking, not quantity of display.

3. **The material in the display should be simple and direct in concept. It should contain as little copy as possible.**

Now who, of your acquaintance, is going to stop in his weekly shopping and read a large blurb of printing on a display card? Nobody, that's who, nobody! You've got to get that message across with the staccato quickness of a snap of the fingers.

It is obvious that a lot of printing can't do this. You need art work, or even better, good food photography, so the potential customer can visualize your message instantly.

4. **And you need to have your honey displayed right along with your display cards.**

That sounds too elementary to be mentioned, but you would be surprised at how often the honey jars are set apart from the posters. A honey steamer hung up on a grocery store wall is fine, but it doesn't do the selling job of a honey streamer that blocks off a small tower of honey jars.

When a housewife spies your honey sign, she must be able to act on the buying impulse that has been created by picking up a honey jar immediately. It's a cinch she isn't going to hunt all over the store for your honey!

5. **When your display material for this spring is all set up, give it a good send-off by tying it in with an advertising campaign.**

It's a matter of record that display efforts work better when bolstered by newspaper and radio advertising.

6. **To counteract the typical retailers comment, "Sorry, no room for display material",** you might try out some novel display arrangement, such as a mobile unit hung from the ceiling right over your honey display.

Simple picture cutouts of your honey jar, for instance, reinforced with cardboard and hung at varying heights from a wire arrangement, would give your display the inexpensive but effective movement that air currents can provide, and yet answer any objection of "no space".

All of this sounds horribly expensive,

(Continued on page 311)

Buy and Sell

Only responsible advertisers and honest advertisements will be admitted to these columns. References required from new advertisers not known to us. Rate: 15c per counted word, each insertion. Each initial, each word in names and addresses, the shortest word such as "a" and the longest word possible for the advertiser to use, as well as any number (regardless of how many figures in it), count as one word. Copy should be in by the 10th of the month preceding publication.

HONEY FOR SALE

WE BUY AND SELL all varieties of honey. Any quantity. Write us for best prices obtainable. The Hubbard Apiaries, Onsted, Michigan.

IOWA honey, one can or truck loads. Russell D. Smalley, Beaver, Iowa.

CLOVER extracted honey in sixties. Abram Brubaker, Lancaster, Pa., Rt. 2.

100 cans clover honey in new cans, 20c pound. Cash and carry. Busy Bee Farm, Rochester, Mich.

CLOVER HONEY FOR SALE in 60 lb. cans. One can or a carload, honey grades extra white in color, the very finest quality 1954 crop. First Come — First Served. Amount limited. Phone Logan 7-5115 or write P. O. Drawer 239, Oconomowoc, Wis.

HONEY AND WAX WANTED

BEEKEEPERS TAKE NOTICE—We can not guarantee honey buyers' financial responsibility, and advise all beekeepers to sell for cash only or on C.O.D. terms except where the buyer has thoroughly established his credit with the seller.

CASH for your comb honey and all types extracted. Send sample and best price. Buckeye Honey Co., 3930 No. High St. Columbus 14, Ohio.

CASH for Beeswax. Write as to quantity and we will quote price. Muench-Kreuzer Candle Co., Inc., Syracuse, N. Y.

HONEY WANTED — All grades and varieties. Highest cash prices paid. Mail samples. State quantity. HAMILTON & COMPANY, 2613 South Yates Ave., Los Angeles 22, California.

WRITE FOR Shipping tags and quotations on rendered beeswax. We buy from one pound up and if you have over 25 pounds let us work it into foundation for you at a 25 per cent saving. Walter T. Kelley Co., Clarkson, Kentucky.

HONEY WANTED, all grades in 60's. Mail samples, advise quantity, best price. A. I. Root Company of Syracuse, 1112-14 E. Erie Blvd., Syracuse, N. Y.

WANTED — White extracted or comb honey. Send sample. Millersport Honey Co., Millersport, Ohio.

WANTED—Light amber-clover and fall-flowers honey. Cloverdale Honey Company, Fredonia, N. Y.

BEST CASH Deal for your honey (any grade) and beeswax. Alexander Company, 819 Reynolds Road, Toledo, Ohio.

BEESWAX WANTED. Highest prices paid in cash or trade for bee supplies. The A. I. Root Co., Medina, Ohio, Council Bluffs, Iowa, San Antonio, Texas.

HONEY WANTED—Extra white, white, and light amber in 60's. Send sample and quote price. Cash paid. Clearbrook Honey Farms, Clearbrook, Minnesota.

WANTED—All grades of extracted honey. Send sample and price. Deer Creek Honey Farms, London, Ohio.

WANTED—Honey in 60's. Send sample and price. Lloyd E. Allen, Tipton, Mich.

WE ARE PAYING top prices on beeswax and honey shipped to one of our plants. Sioux Honey Assn., Lima, Ohio; Rogers, Texas; Anaheim, Calif.; Tacoma, Wash., and Sioux City, Iowa.

WANTED—Dark or strong flavored honeys for cash. Send price and quantity. R. Griggs, Hancock, Iowa.

WANTED—Light or amber honey, in barrels. Send price, quantity, and sample. Bert Lampson, 4 Columbus, Manatee, Fla.

FOR SALE

WRITE FOR CATALOG — Quality Bee supplies at factory prices. Prompt shipment. Satisfaction guaranteed. The Hubbard Apiaries, Manufacturers of Beekeepers' Supplies and Comb Foundation. Onsted, Michigan.

THE BIGGEST BEE SUPPLY Catalog published (64 pages) free for the asking. Listing many items not found in other Catalogs. No agents—buy direct and save 20%. WALTER T. KELLEY CO., CLARKSON, KENTUCKY.

FOR SALE — New heart cypress 10-frame bottom boards. K. D., 10 or more, $1.00 each; 50 or more, 90 cents each, 100 or more, 85 cents each. One nailed up sample postpaid, $1.25. Fred L. Poole, Elizabethtown, Rt. 2, Box 67, No. Car.

COMB FOUNDATION PLANT OF THE EAST—that's WAX WORKERS, 1330 Slaterville Road, ITHACA, NEW YORK.

FOR SALE—8 frame Root equipment for 700-colony apiary. Write for details to E. H. Wadleigh, Monte Vista, Colo.

FOR SALE—Quantity of good new and used ten-frame hive bodies. Some with wired frames and foundation. Two large honey tanks. Some good winter packing cases. Ray Wilcox, Odessa, N. Y.

FOR SALE—75 shallow extracting supers in good condition; 20 wood-and-wire queen excluders; some double Buckeye hives. Alfred Briggs, New Sharon, Iowa.

FOR SALE — 100 8-frame hive-bodies, extra good, 25 cents each. John Lattanner, Montpelier, Ohio.

FOR SALE—Root 20-frame Simplicity extractor. Good condition, $125.00. Gilbert Smith, Wadena, Minn.

BEES AND QUEENS FOR SALE

We use all possible care in accepting advertisements but we cannot be held responsible in case disease occurs among bees sold or if dissatisfaction occurs. We suggest that prospective buyers ask for a certificate of inspection as a matter of precaution.

ITALIANS—Packages, Queens. Martz, Rt. 2, Box 846, Vacaville, California.

THE NORMA ROY APIARY Italian Bees. 3 pounds with untested queen, $3.25; 4 pounds with queen, $3.75. Live delivery and a health certificate with shipment. Book your order now. No down payment. Norma E. Roy & Son, Hessmer, La.

PACKAGE BEES, QUEENS: Prolific, gentle, and disease free Italians. Parcel Post, express. or truck. Circular. Crenshaw County Apiaries, Rutledge, Ala.

Dark Italian Queens, 600-pound strain, bred for production, $1.00. With 2 pounds of bees, $2.85; with 3 pounds of bees, $3.70. Henry Loehr, Caldwell, Texas.

CAUCASIANS, 2-lb. pkg., $3.00; 3-lb. pkg., $4.00. Untested queens, $1.00 each; 100. $75.00. Lewis & Tillery Bee Company, Greenville, Ala.

Three-banded Italian bees and queens. Our regular strain and the Dadant's Starline Hybrids. Untested queens, 1 to 25, $1.20; 25 to 100, $1.10; 100 up, $1.00 each. Package bees, 2-lb. with queen, $3.50; 3-lb. with queen, $4.50. Packages shipped from No. Carolina. For Dadant's Starline Hybrids, add 30c per queen. Alamance Bee Company, Graham, No. Car., Phone 4703.

THREE-BAND Italian bees and queens. 3-lbs. with queen, $4.70; 5-lbs., $6.70. Queens, $1.00. Shipped postpaid. Luther Pickett, Efland, N. C.

FOR SALE—About 50 colonies Italian bees. Inspected. Karl Rude, Mexico, N. Y.

CAUCASIANS — Very hardy, gentle, long lived, good workers. personally raised. Select untested queens, $1.10, any number. Fred Brock, McDonald, Tenn.

GOLDEN ITALIAN bees and queens. Very beautiful and very gentle. Untested queens, 1 to 25, $1.20; 25 to 100, $1.10; 100 up, $1.00. 2-lb. package with queen, $3.50; 3-lb. with queen, $4.50. For additional pound of bees, add $1.00 per lb. Carolina Bee Farm, Graham, N. C.

STANDARD 8 or 10-frame two-story strong colonies for May or June delivery. Reasonable terms. Eugene Walker, Rt. 2, Box 207, Live Oak, Calif.

Bees for sale, twenty colonies. Nelson's, R. D. 146, Ridgeway, Pa.

FOR SALE—200 colonies of bees in standard double hive bodies, located in five yards. Mrs. F. W. DeTemple, Darien Center, N. Y.

FOR SALE—17 strong 2-story colonies, clean A-1 condition, young queens. All or part, $10.00 each. Albert Ihlefeld, Davenport, R. 4, Iowa.

FOR SALE — 100 10-frame colonies. Booster bees, 60 cents pound after May 15th, you supply cages. A. V. Dowling, Valdosta, Ga.

FOR SALE—Two or 300 colonies fully equipped, 8 and 10-frame. Enough supplies for 400 colonies. Metal covers, plenty of honey on. No disease. J. D. Knight, Eldorada, Kansas.

HONEY WANTED
Carloads and less than carloads. Mail sample and best prices in all grades.
C. W. AEPPLER COMPANY
Oconomowoc, Wisconsin

1955 QUEEN BEES
3-Banded Italians
1-9 ..... $1.10 each
10 or more ..... 1.00 each
Queens ready about April 5th.
Geo. W. Moore
Shasta, Shasta Co., California

J. E. WING & SONS
42 Years Continuous Service
Italian Package Bees
and Queens
Our Specialty
Knights Landing, Calif.

QUALITY BEES
DEPENDABLE
SERVICE
NOW READY. Send us your rush orders — you can depend on them when wanted. Full weight, safe arrival, health certificate and satisfaction.
33 Years as Shippers.

— PRICES —	1-11	12-100
2-lb. pkg. with queen	$3.25	$3.00
3-lb. pkg. with queen	4.00	3.75
Untested queens	1.00	.90
Tested queens	2.00	1.75

Package bees are shipped express F.O.B. If wanted shipped parcel post, add postage.
NORMAN BROS. APIARIES
P. O. Box 42 Ramer, Alabama

QUEENS ITALIANS

	1-24	25-99	100-up
Nice large queens	85c	80c	75c

After May 20th — 70c each
June 1st through Sept. — 60c each
Send us your order of 1 or 1000
MITCHELL'S APIARIES
BUNKIE, LA.

HONEY LABELS
Improved designs, embodying color, balance, simplicity, and distinction. Please send for free samples & prices.
C. W. AEPPLER COMPANY
Oconomowoc, Wisconsin

XUM

Get More Per Hive In 1955

Use Package Bees with Island Hybrid Queens

We plan larger and better production of 4-way Hybrid queens in '55.

Place your order early for favored dates and delivery on Package Bees.

Prices with Island Hybrid Queens

	2-lb.	3-lb.
1 to 25	$3.65 ea.	$4.65 ea.
26 or more	3.40 ea.	4.40 ea.

For regular queens, deduct 25c per package. Write for prices on early Booster Bees.

"They Produce"

Rossman Apiaries

P.O. Box 133 Moultrie, Ga.

Phone: 755R

Package Bees & Queens
Quality & Service
C. F. KOEHNEN & SONS
Glenn, California

QUALITY-BRED Italian Queens

June 1st until Nov. 1st.

$8.00 per dozen by airmail
.70 each, one to eleven

Breeders selected in our Northern Apiaries for production and hardiness.

Walter D. Leverette Apiaries

P. O. Box 364 Ft. Pierce, Fla.

ITALIANS QUEENS

2-lb. pkg. with queen	$2.60
3-lb. pkg. with queen	3.45
Queens	.70

CLARK'S APIARIES
Bunkie, La.

100 10-frame colonies, with excluder and shallow super. Excellent condition. $10.00 each. Osceola Honey Farms, Elizabeth City, N. C.

FOR SALE—One truck load of bees 100 to 200 hives. One 10-frame Standard body and one shallow super full of bees and brood. Combs on wired frames from 3-ply foundation, $15.00. Will take good equipment in exchange. H. A. Franke, Uvalde, Texas.

SEEDS

HONEY PLANTS our specialty. Catalog on request. Pellett Gardens, Atlantic, Iowa.

MISCELLANEOUS WANTED

WANTED—400 colonies bee, complete with supers. Purchase or lease. Norman Roos, Hawley, Minn.

WANTED—Copper tank, tinned inside. 10, 20, or 30-gallon. What have you? Perfect in detail, no dents. Covered or open. State price, crated, C.O.D. John Whitefield, DeLancey, Jeff. County, Pa.

MISCELLANEOUS

Bargains in new or used honey cans or Root Supplies for cash or honey. Buckeye Honey Company, 3930 N. High St., Columbus 14, Ohio.

TRY NATIVE HONEY — Printed on white 58M caps. Makes sales $2.00 per 100 F.O.B. B. W. Richardson, 303 Lincoln St., Worcester 5, Mass.

POLLEN PIES — Supplements lack of natural pollen. Hive fed, Used the country over. 75 cents pound. BURL-WICKS—Light and drop in smoker. Chemically treated. Harmless to bees. Convenient and long lasting. Season supply (6) $3.00. EASTON'S BEETERIA, Box 99, SIDNEY, NEW YORK.

HELP WANTED

WANTED — two men to work in our packing plant and apiaries. Excellent wages, bonus, other advantages. Schultz Honey Farms, Ripon, Wisconsin.

SUPPLIES

NOW READY — Your copy of the BIGGEST MONEY SAVING CATALOG of Quality Bee Supplies at savings up to 25%. Prompt shipment—100% satisfaction guaranteed. WRITE TODAY! MONDENG MFG. CO., MINNEAPOLIS 5, MINN.

MAGAZINES

Know interesting facts concerning the bees of India through the INDIAN BEE JOURNAL, published in English by the Bhupen Apiaries (Himalayas), Ramgarrh Dist. Naini Tal, U. P. India, or available through them. Subs. Rs9/ or 15 shillings or $2.25 yearly. Sample copy post free for Rs1/8/, or s2/6, or 40 cents (International Money Order). Payment in mint postage stamps of your country accepted.

ARCHIVE of BEE SCIENCE (Archive fur Bienenkunde), oldest scientific, independent bee journal in the world. Select feature material gives lasting theoretical and practical knowledge. Sample copies available. Two large 1953 editions for the low price of DM 5.50. Biene-Verlag (Bee Publishers), Lindau (B), Postcheck Karlsruhe 5581, Germany.

BEE WORLD, the international journal of the Bee Research Association, published monthly, contains the latest research reports on bees and beekeeping. With Apicultural Abstracts it cost $3.00 per annum. Apicultural Abstracts only $1.75 per annum from the Hon. Subscription Secretary, Bee Research Association, 10 Barnett Wood Lane, ASHTEAD, Surrey, England.

Read the South African Bee Journal. Published every two months. Subscription 7/6 per year to the Treasurer, P. O. Box 3306, Cape Town, South Africa.

INTERESTED in Angora Goats? Read the Sheep and Goat Raiser, Hotel Cactus, San Angelo, Texas, the only ranch magazine published serving the Angora Goat industry. Subscription $1.00. Sample copy fifteen cents.

Good Italian Queens
In season
White Pine Bee Farms
Rockton, Pa.

QUEENS OF QUALITY
Bred by Selection and Natural Mating
$1.10 ea. 25 or more $1.00 ea.
Also Package Bees.
Refer to our Ad in April issue for prices, or write
J. F. McVAY
Jackson Alabama

AMERICAN HONEY INSTITUTE NEWS NOTES

(Continued from page 307)

especially to the small business person. But the expense will vary according to (1) your own originality and resourcefulness, (2) the amount of planning and research you do before leaping into any one field of display, and (3) the size of your business and consequently of your markets.

There is a correct merchandising method for every honey businessman. The small operator must be careful not to over-extend himself in his zeal to compete with his big brothers. On the other hand, the big-boy must not sell himself, his product, and his responsibility to that product short.

Just what this merchandising responsibility must be we cannot say. That each man must judge for himself. And after all, isn't that the best way? For who is a more severe critic of a man than the man himself?

Italian Queens
75c each
Air Mail
and
Guaranteed to Please
O. K. Anderson & Son
Box 193
Coffee Springs, Ala.

ITALIAN BEES AND QUEENS
2-lb. pkg. with queen $2.80
3-lb. pkg. with queen 3.40
4-lb. pkg. with queen 4.15
5-lb. pkg. with queen 4.95
Extra queens, each, ... .85
Live delivery guaranteed and health certificate with each shipment.
GASPARD BEE CO.
Hessmer, Louisiana

HONEY WANTED
Cut Comb and Extracted
Advise what you have
T. W. BURLESON & SON
WAXAHACHIE, TEXAS

WILLIAMS' ITALIAN QUEENS
LARGE LEATHER COLORED
THREE-BANDED
QUALITY SUPREME
CERTIFICATE WITH EACH SHIPMENT
1 - 9 Postpaid, Airmail $1.00
10 -99 " " ..... .95
100-up " " ..... .90
DR. WILLIAMS APIARIES
115 W. Sterling Ave. Baytown, Texas

"The Australian Bee Journal"
Published by the Victorian Apiarists' Association at the beginning of each month.
Subscription 10/-per annum plus 2/6 postage to oversea countries.
Address 112 Whitehorse Rd.
Ringwood, Victoria, Australia

THE AUSTRALASIAN BEEKEEPER
The senior beekeeping journal of the Southern Hemisphere provides a complete cover of all beekeeping topics in one of the world's largest honey producing countries. Published monthly by Pender Bros. Pty. Ltd., Box 20, P. O., Maitland, 3N, N.S.W., Australia. Subscription by Bank Draft or International M. O. 18/- (approx. $2.15) per year, post free. Sample copy free on request.

PACKAGE BEES — QUEENS

STARLINE HYBRID QUEENS—Ahead of anything we have tried in Hybrids. Send for descriptive results of 3 years test of Dadant Starline Hybrid Queens.

GARON'S OWN 3-BANDED ITALIAN STOCK improved through Know-How in selecting Breeding Queen Mothers for combinableness necessary for highest Honey Production.

Reg. U.S. Pat. Off.

Prices to May 25th

	QUEENS		PACKAGE BEES & QUEENS		
	Italians	Starlines	2-lbs.	3-lbs.	4-lbs.
1-24	$1.15	$1.50	$3.40	$4.35	$5.30
25-99	1.10	1.40	3.30	4.25	5.20
100-up	1.05	1.30	3.20	4.15	5.10

Prices from May 26th

	Italians	Starlines	2-lbs.	3-lbs.	4-lbs.
1-24	$1.05	$1.50	$3.20	$4.15	$5.10
25-99	1.00	1.40	3.10	4.05	5.00
100-up	.95	1.30	3.00	3.95	4.90

When Dadant Starline 4-Way Hybrid Queens are wanted with packages, add 25c extra per package.

Queens clipped and marked when desired, and Air Mailed at no extra cost.

GARON BEE COMPANY — **Donaldsonville, La.**

BETTER-BRED QUEENS — THREE-BANDED ITALIANS

The bad weather over, let us fill up that empty equipment with our Better-Bred Stock. Don't let those failing queens rob your profits. Good queens will pay off. Let us fill your needs at the following prices:

	2-lb. w/q	3-lb. w/q
1 to 18	$3.25	$4.15
18 to 99	3.10	4.05
99 or more	3.00	4.00

Queens, any quantity, 75c. After May 15th, 65c.
25c per package less after May 10th.

CALVERT APIARIES — **CALVERT, ALABAMA**

PACKAGE BEES & QUEENS
"Italians"

Wilbanks offers you tested stock proven for honey producing ability and easy handling. Satisfied customers through years assure you of the greatest value here.

— PRICES —

	1-9	10-up	parcel post ship. wt.
2-lb. pkg. with young laying queen	$3.25	$3.00	7 lbs.
3-lb. pkg. with young laying queen	4.25	4.00	8 lbs.
4-lb. pkg. with young laying queen	5.25	5.00	10 lbs.
Extra Queens	1.10	1.00	Postpaid

Shipments by Express, Parcel Post or your Truck.
Package Bees F.O.B. — Include Postage for Parcel Post Shipments

QUALITY DOES NOT COST — IT PAYS

THE WILBANKS APIARIES — **Claxton, Georgia**

HISTORY OF BEEKEEPING

(Continued from page 284)

apart, and no mixing at all where the distance between the feeding sources was 20 yards. (See 1930).

1910 A.D.—The ABC of Bee Culture, became the ABC and XYZ of Bee Culture.

1912 A.D.—The first successful shipment of package bees from the South to the North. Shipper: **W. D. Achord,** Alabama.

G. F. White (U.S.A.) definitely proved that European foulbrood is caused by **Bacillus pluton.**

The American Bee Journal was purchased by the present owners, **Charles Dadant and Sons,** after it had changed hands several times.

1913 A.D.—**A. B. Marchant** of Florida and **D. D. Stover** of Mississippi, advertised that they could accept orders for pound packages of bees. This marked the beginning of the package business. The demand for package bees increased greatly when the United States entered the war.

1914 A.D.—A method of making finely granulated honey was developed in New Zealand.

During and following the first World War, honey was used extensively in carbonated drinks in U.S.A.

Jager and **Howard** succeeded in instrumentally inseminating one queen, which laid about 3000 eggs resulting in normal worker bees. The queen became a drone layer the next year.

"ABC and XYZ of Bee Culture" translated into Spanish by **O. P. Hollander.**

1915 A.D.—**Howard** and **France** (U.S.A.), using a capillary tube into which the spermatic fluid had been drawn and which was then inserted into the bursa copulatrix of the queen, and the content gently forced into the vagina by pressure from the mouth, treated 55 virgins. They were partially successful in three cases.

Rapid spread of the European foulbrood in U.S.A., causing the beekeeping industry considerable losses.

The Nosema disease of adult bees was recognized by American beekeepers around this date. The organism was first studied by **Donhoff** in 1857 and was named in 1909 by **Zander,** Nosema apis.

CAUCASIAN & CARNIOLANS

Start the New Year with young queens and be assured of plenty of bees when the honey flow starts. Caucasians or Carniolans build up rapidly, build white combs, and are gentlest of all races of bees.

Untested queens ..... $1.20 ea.
Foreign ..... 1.50 ea.

Discount on quantity.
Order early to be sure of queens, ready March 10th.

W. D. REAMS
Box 87 LaBelle, Florida

Italian Queens
EUGENE WALKER
Rt. 2, Box 207
Live Oak, California

HARPER'S FAMOUS
High Quality Italian
QUEENS and PACKAGE BEES

Prices After May 5th

2-lbs. w/q	3-lbs. w/q	4-lbs. w/q
$3.15	$4.00	$5.00

QUEENS, 85c ea. 10 and up, 75c ea.

ALL Queens sent Air Mail. Bees are VERY PROLIFIC AND EXTRA GOOD HONEY GATHERERS.

CARLUS T. HARPER
New Brockton, Ala.

Healthy Italian Bees & Queens
Write for 1955 Prices
Georgia Bee & Honey Apiaries
P. O. Box 312 Hortense, Ga.

Publication of "The Embryology of the Honeybee" by **Dr. J. A. Nelson** of the U. S. Department of Agriculture.

1916 A.D.—**The Beekeeper's Item** was founded at New Braunfels, Texas, by **Louis Scholl.** It absorbed the Beekeeper's Review in 1933.

Professor **H. D. Hughes,** Iowa, discovered the annual sweet clover. This could bloom starting with the first year. Its importance was quickly realized and it became of great demand. This annual clover was named Hubam clover.

(to be continued)

WEAVER'S
CAUCASIAN BEES & QUEENS

Our prices with new cages

	Queens	2-lb. w/q	3-lb. w/q
1 to 9	$1.25	$3.50	$4.50
10 to 48	1.15	3.40	4.40
49 to 100	1.05	3.25	4.25

Prompt shipment — young laying queens — full weight — young bees. State health certificate with each order. Deduct 20 cents a package for bees in clean used cages.

Shipments made by express; your truck by prearrangement. Small orders go cheaper by parcel post. For further information write us.

HOWARD WEAVER, Navasota, Texas

LIVE AND LEARN

(Continued from page 295)

though. If there are many beekeepers in the same fix that I am in, there will be shouts of joy from the package breeders. That is, of course, if they have been able to arrange their affairs to take care of the rush. The rub comes in that they have to lay their plans a long while ahead. They can't work overtime and manufacture bees to fill their orders. It still takes three weeks to make a bee, regardless of electronic controls, nuclear power, and synthetic vitamins.

ITALIAN
Package Bees and Queens for 1955

	1-11	12 or more
2-lb. pkg. with queen	$3.25 ea.	$3.00 ea.
3-lb. pkg. with queen	4.25	4.00

Live delivery guaranteed.

GIRARDEAU APIARIES **Tifton, Ga.**

PACKAGE BEES ITALIAN QUEENS

Good Producers — Gentle

You will like them. Good service.

A. R. BANTA **Los Molinos, Calif.**

DARK ITALIAN QUEENS

As GOOD as the BEST

1 to 10 .....$1.20 11 to 50 .....$1.10 51 and up $1.05

For 28 years a Commercial Queen Breeder

WEAVER APIARIES **Navasota, Texas**

THREE-BANDED ITALIAN PACKAGE BEES AND QUEENS

Shipped Anywhere in United States and Canada

1955 Prices F.O.B. Hampton, S.C.	Queens (each)	2-lb. & queen	3-lb. & queen	4-lb. & queen	5-lb. & queen
1 - 24	$1.10	$3.50	$4.50	$5.50	$6.50
25 - 99	1.00	3.25	4.25	5.25	6.25
100 - up	.95	3.00	4.00	5.00	6.00

(For queenless packages deduct price of queen)

Guaranteed safe arrival

Health Certificate with each shipment

Queens clipped and painted if desired

Shipper rated in Dun & Bradstreet

TERMS: One-third with order, balance 10 days before shipment.

H. C. BRUNSON **Hampton, South Carolina**

P. O. Box 188 **Phone: 2161**

HOMES WANTED

For a good home we will pay good rent. That is what MERRILL'S bees can promise you, and the price is low for First Quality bees and queens. Italians only.

	1-25	25-50	50-up
2-lb. pkgs. with queens	$3.00	$2.75	$2.50
3-lb. pkgs. with queens	4.00	3.75	3.50
Untested queens	1.00	.85	.75
Tested queens (each)	2.00		

Prices are F.O.B. shipping point on bees, queens delivered by mail. If bees are wanted by mail get rate of postage from your postmaster.

2-lb. packages 7 lbs. each, crate of 3 packages 21 lbs.
3-lb. packages 9 lbs. each, crate of 3 packages 27 lbs.

Daily shipments are now going out.

MERRILL BEE COMPANY

P.O. Box 115 **State Line, Miss.**

Three-Band Italian Package Bees and Queens
and Pure Italian Three-Way D. R. Queens

Full weight, prompt shipment, young bees. State health certificate with each shipment. Live arrival guaranteed. Replacement or refund made promptly upon receipt of bad order from your express agent.

1955 Prices
Each Package with a Young Laying Queen

Lots of	2-lb.	3-lb.	4-lb.	5-lb.
1 - 29	$3.25	$4.00	$4.75	$5.50
30 -100	3.00	3.75	4.50	5.25
100-up, each	2.80	3.50	4.25	5.00

Tested Queens $2.00 each **Untested Queens $1.00 each**

For introduced queens, add $1.00 per package. If queenless bees are wanted, deduct $1.00 from the price of each package.

JACKSON APIARIES **FUNSTON, GEORGIA** **U. S. A.**

"GULF BREEZE" ITALIAN PACKAGES & QUEENS

Due to the late freezes and dry weather, bees and queens are scarce in the South. We have stimulated our colonies and will have many packages available during May. Our queen capacity is large and under the supervision of the owners. RUSH your orders to us NOW.

PRICES:

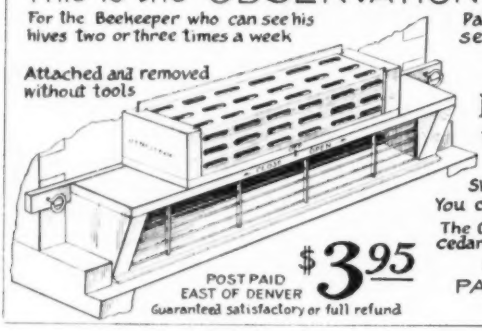
Quantity	Queens	Packages with Queens 2-lbs.	3-lbs.	4-lbs.
1-24	$ .90	$3.50	$4.40	$5.40
25-99	.80	3.35	4.25	5.25
100-up	.75	3.25	4.15	5.15

BESSONET BEE COMPANY **Donaldsonville, La.**

This is the "OBSERVATION" Drone and Queen Trap

For the Beekeeper who can see his hives two or three times a week

Attached and removed without tools



Patented by C.H.Pease, of Canaan,Conn., after several years of experiment and improvement

U.S. PATENT 2,578,634

SEND FOR FREE CIRCULAR OF INSTRUCTIONS FOR USE

It gets rid of the Drones,- those "Free-loaders" that eat your Honey

It prevents loss of Swarms-one big swarm may be worth more than price of a trap

You can see at a glance "what is doing" in a colony

The OBSERVATION trap is precision-made of clear cedar and non-rusting metal, to last for many years

POST PAID EAST OF DENVER $3.95

Guaranteed satisfactory or full refund

MANUFACTURED FOR AND SOLD ONLY BY

PATENT SERVICE ASSOCIATES

HAVERHILL, NEW HAMPSHIRE

ADVERTISE

YOUR

BEE BUSINESS

T Shirts with the picture of a Bee and your name and address imprinted. **75c each plus a $3.00 set up charge on first order. All sizes.**

Da-Glo Bumper Strips .....25c each plus a $2.00 set up charge on first order. Write.....

Robert Romack
CHAPTER SUPPLY CO.
Danville, Illinois

AVAILABLE JUNE 1st.
The Yanke Strain — $1.00 each
The Best Queens for Honey Production
22 Years of Breeding
The Stricker Apiaries Annandale, N. J.

20 cents for 8 - 9 oz.

of your honey in our plastic container. Write for details

COBANA PROD. CO.

P.O. Box 214 Dearborn 1, Mich.

Answers to "How Many Can You Identify" on page 285

1. **Walter Rothenbuhler.** Beekeeping specialist at Iowa State College who has now taken over much of the work carried on by the late O. W. Park.
2. **Frank R. Shaw.** Beekeeping specialist at Massachusetts State College. Interested in marketing with special emphasis on design of honey labels.
3. **Harold W. Clay.** Honey marketing advisor of the U. S. Department of Agriculture. Mr. Clay has long been a loyal supporter of the bee and honey industry in Washington, D.C., through good and bad times. His keen interest and kindly help to the industry has been invaluable in bringing greater recognition of the value of bees and honey to official Washington.
4. **Addison C. Gould.** Chief Apiary Inspector of New York State. Believes in working right along with his deputies, and while in the process, really sets a pace for them to follow.

JUST NEWS

(Continued from page 305)

In the death of **Mr. Carl Neff** of Boonville, Missouri on March 3, 1955, beekeeping and fruit-growing lost one of their pioneers and most faithful members. For the fruit and honey exhibits at our state and county fairs Mr. Neff was always ready to do his part and more, and he always succeeded in taking home his share of the prizes. He seemed able, always, to produce top quality products and to display them to best advantage in bringing out the real advertising value of exhibits. We in Missouri will also miss his friendly smile and wise counsel at our future beekeeping meetings.—Leonard Haseman, Professor Emeritus of Entomology.

TOO LATE TO CLASSIFY

FOR SALE cheap. 50 good used 10-frame hives with combs. Fred C. Jewett, Apalachin, N. Y. Phone 11Y7, R. D. 1.

FOR SALE—15 colonies bees. 10-frame Root hives, best condition, low price. For information, call Harry Engstrom, 3216 W. 62nd Place, Chicago. Ill., Grovehill 6-1551.

FOR SALE — 1000 Kelley's standard frames and wired foundation, original cartons, 100 eight-frame supers, new frames, combs, bargain. M. Melvin, 10 East Ave., Celoron, N. Y.

FOR SALE — 450 colonies, equipment partly made for 500. Large rockfaced cement block shop. Modern equipment. Locations. No disease. Truck, livable cabin. This is a very good going business in excellent condition. Substantial down payment. Wilburt A. Walker, Port Austin, Michigan.

JENSEN says:

Yes, we took a beating in the past weeks by the weather-man; but by dint of experience and resourcefulness we are slowly but surely regaining our equilibrium. If your order was delayed, please bear with us; We've done our best. Orders will be filled in sequence, without partiality, and with least possible delay consistently. Volume of orders booked with us is indicative of your faith in us and our products. We strive to merit your confidence.

DADANT'S STARLINE HYBRIDS
Reg. U.S. Pat. Off.

Special Introductory Offer: On all orders for our "Magnolia State" Italian Queens we will substitute 10 Dadant "Starline" Hybrids (or 10% of order whichever is least) at the price of Magnolias. Please specify acceptance in your order. All Hybrids Clipped and Marked Free, others only on request. Fumidil-B fed to both cell-builders and mating nucs.

	"Starline" Hy. Queens	"Magnolia State" Italian Queens	Packages with Queens 2-pound	3-pound
1-24	$1.50	$1.25	$3.75	$4.75
25-99	1.40	1.15	3.50	4.50
100-up	1.30	1.05	3.25	4.25

For "Starline" Hybrid Queens in Packages, add 25c to each.

JENSEN'S APIARIES MACON, MISS. U.S.A.
"The Business QUALITY Built"

HONEY DOES SOMETHING FOR CANDY

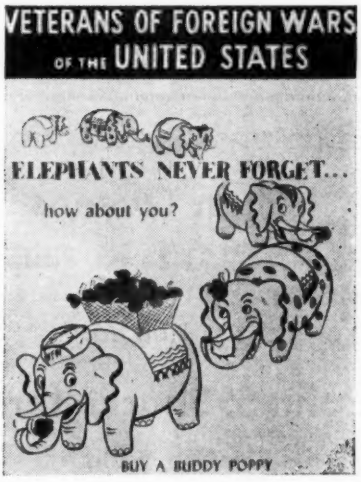
(Continued from page 280)

appears at this time to be an almost forgotten item. Beekeepers and cooperatives who have honey to sell to the confectioner, and have standardized their products on the lines mentioned in the foregoing, should advertise their wares in candy trade magazines, have one ounce tasting samples available, and literature on the use of honey in confectionery to hand out to the user, as a reminder on a once familiar "know-how".

Beekeepers who do not have too large a volume of honey to dispose of, can solicit their local "candy kitcheners" and/or advertise in local or neighborhood publications. Packages of suitable size, such as 5 gallons for small users, larger packs for volume users, should be available.

A list of the leading candy trade magazines in which cooperatives and large producers can advertise their wares, would include the Manufacturing Confectioner, Candy Industry, Confectionery and Ice Cream World, Confectioners' Journal, The International Confectioner, and The Confectioner.

The New Zealand Beekeeper
The Quarterly Magazine of the National Beekeepers' Association of New Zealand. Better Beekeeping — Better Marketing. Subscription, 8 shillings per year, payable to
THE GENERAL SECRETARY
Box 19 Foxton, New Zealand



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Gleanings in Bee Culture
Medina, Ohio

BEES and QUEENS

The rearing of good Italian queens and bees is our only business.

45 years experience

	1-9	10-48	49-up
2-lb. pkg. w/q	$3.60	$3.35	$3.25
Queens	1.25	1.15	1.10

Add 90c per pound for larger packages. Young laying queens. Full weight. Young bees. Health certificate with each shipment. Prompt service.

W. E. PLANT
Rt. 2, Hattiesburg, Miss.

Italian Queens

1 to 9 .... $1.25 ea. Postpaid
10 to 24 .. 1.10 ea.
25 or more 1.00 ea.

John S. Shackelford

Rio Oso, Calif.

JOHN DAVIS QUEENS

We ship until November 1 and fall is the right time to requeen. Order now and be sure. $1.00 each, any number.

LITTLE'S APIARIES
Shelbyville, Box 122, Tenn.

Booking orders now. Over 30 years a shipper. Send for Free Circulars.

BLUE BONNET APIARIES
Weslaco, Texas

A TALK TO BEEKEEPERS

(Continued from page 303)

ergy taking granulated sugar than they would in taking sugar syrup. I am not sure about this. Granulated sugar is very dry and the bees have to mix water with it in order to make it available as food.

Bees Carrying Pollen During Cool Weather

I SAW THE first bee carrying in pollen on March 15th. This is rather early for this section of the country. A few days later, I noticed bees carrying pollen when the mercury on the northeast side of a tree stood at 52 degrees F. I have wondered how bees can collect pollen at such a low temperature. I have wondered also, how bees can collect pollen soon after a rain, while vegetation is still wet. Could it be that these bees with their loads of pollen got caught in the rainstorm and found shelter in some protected spot until the rain was over?

The technique used by bees in collecting pollen from plants and packing it into the corbicula or pollen basket on the hind legs is amazing and somewhat difficult to understand. The majority of beekeepers are so busy that they do not take much time for observing bee behavior. In Dorothy Hodge's book entitled "The Pollen Loads of the Honeybee" there is a chapter entitled "The Pollen Packing Process", which is well worth reading.

The Big Problem in Beekeeping

Obviously, each beekeeper if he wishes to secure the maximum crop of honey must have his colonies up to peak strength at the time the major honey flow starts, or is supposed to start. It has been well said that some colonies build up to full strength on the honey flow instead of for it. When we consider the fact that approximately five weeks are required to produce a bee of the honey-gathering age, we begin to realize how important it is to have all colonies maintain heavy brood rearing during the spring months. Three weeks are required for a bee to develop from an egg, then about two weeks more for that bee to become a field bee.

In this latitude, May is one of the most important months of the year. Bees produced as the result of brood

ALWAYS BEST **AHEAD OF THE REST**

BERRY'S

"Old Reliable" Strain Italian Bees

STANDARD OF THE BEEKEEPING PROFESSION

Definitely, the **PREFERRED** stock of **MAJOR SUCCESSFUL HONEY PRODUCERS** the **WORLD** over. **INSURE** your crop with young, vigorous, producing, **DEPENDABLE BERRY BEES.** Sixty years of **SELECT** breeding.

PRICES APRIL 1st to MAY 20th

Package Bees with Queens and Individual Queens

	Queens	2-lb. pkg.	3-lb. pkg.	4-lb. pkg.	5-lb. pkg.
1-24	$1.15	$3.50	$4.50	$5.50	$6.50
25-99	1.10	3.40	4.40	5.40	6.40
100-499 ...	1.05	3.30	4.30	5.30	6.30
500-up ...	1.00	3.25	4.25	5.25	6.25

(Prices after May 20th)

Quantity	Queens	2-lb pkg.	3-lb. pkg.	4-lb. pkg.	5-lb. pkg.
1-24	$1.00	$2.75	$3.75	$4.75	$5.75
25-99	.90	2.65	3.65	4.65	5.65
100-up	.85	2.55	3.55	4.55	5.55

(For Queenless or Booster Packages deduct price of queen)

M. C. BERRY & SON P.O. BOX 684 MONTGOMERY, ALA.

A TALK TO BEEKEEPERS

rearing during May are the bees that help to store the surplus honey from clovers during June and early July.

Sometimes a short dearth of nectar occurs the later part of May and early June, between the fruit bloom-dandelion flow and the clover flow. It is very important that bees be well supplied with stores at that critical time. Populous colonies have been known to starve during a cool spell in late May and early June, even when some clover was in bloom. Be sure to check on stores at that time.

CAUCASIAN or ITALIAN Package Bees and Queens

Bees gentle to work with, less swarming, good producers, health certificate, and live arrival guaranteed are just a few things you get when your requirements are sent to me.

PRICES ARE:

Quantity		1-25	25-50	50-100
2-lb. pkg.	w/q	$3.00	$2.90	$2.85
3-lb. pkg.	w/q	3.90	3.80	3.75
4-lb. pkg.	w/q	4.85	4.75	4.65
5-lb. pkg.	w/q	5.80	5.70	5.50
Queens		1.05	1.00	.95

FARRIS HOMAN
Shannon, Miss.

FLOWERS' QUALITY ITALIANS

That will stand the test for honey gatherers; gentle; prolific; queens bred from hives making 300 pounds honey; guaranteed mated and laying; health certificate; full weight; prompt shipment; live delivery guaranteed. Ship by express, truck, or Parcel Post. Include postage for parcel post shipments.

Packages with Young Laying Queens

(Any amount of Packages)

2-lb. pkg.	3-lb. pkg.	4-lb. pkg.
$2.75	$3.25	$4.00

Tested queens, $1.50 any amount

Queens, Airmail

1-24	25-100	101-up
75c	75c	65c

OUR QUEEN OUTPUT IS DOUBLE FROM LAST YEAR SO IF YOU WANT THEM AT ONCE. SEND US YOUR ORDERS.

For further information, write us.

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BEES and QUEENS

Three-banded Italian bees and KELLEY'S ISLAND improved hybrid queens direct from our own farm. Shipments start April 1st, express or parcel post shipment. Thousands of extra queens.

	Kelley Island Queens	2-lb. bees & K. I. queen	3-lb. bees & K. I. queen
1-24	$1.10 air mail	$3.50	$4.50
25-99	1.05 air mail	3.25	4.25
100-up	.95 air mail	3.00	4.00

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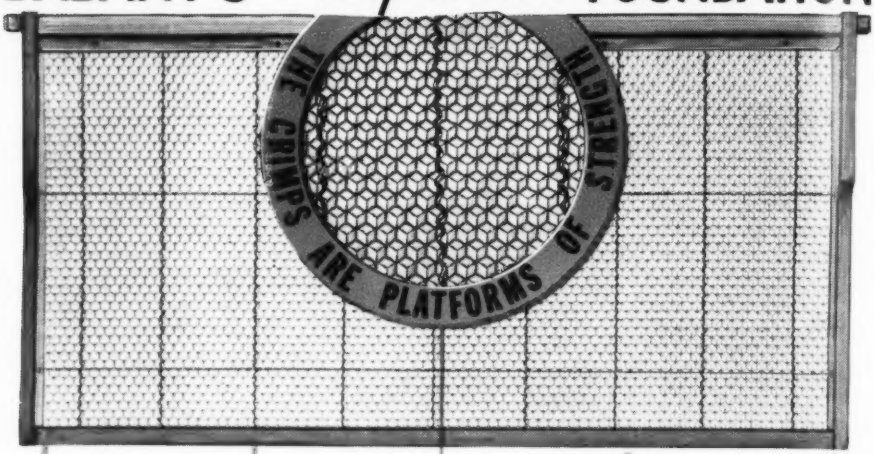
Gleanings in BEE CULTURE

June 1955

JUN 3 1955

DADANT'S *Crimp-Wired* FOUNDATION



The Choice Of Expert Beekeepers

In heat or cold the hooks will hold

The crimped wires radiate shoulders of strength

Wires of special steel for greatest support

Accurate embedding so bees use every inch

Made only from pure beeswax

Refined for utmost cleanliness

Brilliant, natural color

Accepted at once by the bees

Cell walls a guide to perfect comb

Milled to exact measures

All cells just alike

Every sheet the same

Carefully and rigidly inspected

Securely and safely wrapped

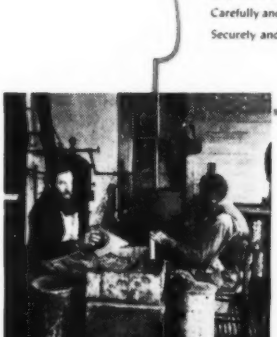
Comb Strength in All Directions

Each crimp in each wire forms a little platform for the foundation and the comb to rest on. This support passes through every inch of the pure beeswax sheet. The smiling crinkles are really woven into the wax, each one meeting its neighbor in opposite swings to hold the wax rigid constantly. The crimps will stand heat and weight that no other type of support will give. They hold the comb firmly while it is being drawn and forever after. You can feel secure for a lifetime of use with combs drawn from Dadant's Crimp-wired Foundation.

Gives You LIFETIME COMBS

I'm a crank about good combs. James Starkey, formerly chief Inspector for Indiana, once said I had the best combs in the state. Good, all-worker brood combs are an economic necessity. They require less hive handling; give more brood room with less equipment and, with few drones, you get larger crops. The basis of a good comb is the foundation. I have tried all kinds but only Dadant's Crimp-wired Foundation meets my requirements. It is pure and perfectly milled and the crimps afford little platforms for the foundation and comb to rest on. You get beautiful combs that lessen your work and your costs.

1863 1953



Hand dipping foundation on boards in early days. C. P. Dadant at left.

90 YEARS of beekeeping experience - -
75 YEARS of foundation making

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PURE BEESWAX — Dadant's Foundations are made of pure beeswax, just as your bees make it. So wax from your combs is worth the highest market price and is safe for food use.